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AN APPLICATION OF PLANNING, PROGRAMMING AND BUDGETING TO A SEMI-PUBLIC, NON-GOVERNMENTAL ORGANIZATION

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NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

AN APPLICATION OF PLANNING, PROGRAMMING AND BUDGETING TO A SEMI-PUBLIC, NON-GOVERNMENTAL ORGANIZATION

by

Howard Helmut Guilhaus

Thesis Advisor: R. von Pagenhardt

September 1972

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An Application of
Planning, Programming and Budgeting to a Semi-Public, Non-Governmental Organization

by

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Submitted in partial fulfillment of the
requirements for the degree of

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September 1972

ABSTRACT

This thesis describes the application of modern managerial concepts and analytical techniques — represented by Planning, Programming, and Budgeting — to a small semi-public, participative, non-governmental organization. After describing and analyzing the organization's operations, activities and alternative futures, the author describes his grouping of its activities into objective-oriented programs with expenses, income, effectiveness measures and "out-puts" related to each program. The design, development, and inauguration of a computer based system for data collection and billing is explained as well as a proposed management prediction model. It concludes with an appraisal of their relevance and usefulness to the organization's Board of Directors as aids in the making of rational and wise decisions regarding anticipated choices in the near and further future.

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I. INTRODUCTION OF "PPB INTO AN "NGO"

The introduction of a Planning, Programming, Budgeting (PPB) system into the Monterey Peninsula Yacht Club, sometimes called the MPYC or the Club, was an intriguing and enlightening experience in applying modern management concepts to a non-governmental organization (NGO). Notions of PPB were not new to MPYC's management; studies analyzing past performance in terms of cost/benefit theory and fiscal data were immediately available. Several members were putting questions as to the futurity of current decisions and calling for planning and budgeting to be practiced and joined through rational programming. What is now new at MPYC is an actual management system employing concepts and information that aid in choosing alternative futures on the basis of specific analytical formulations and statistical analysis.

A. A SKETCH OF THE MONTEREY PENINSULA YACHT CLUB

A thumbnail sketch of the MPYC, an incorporated, non-profit, NGO operating under a set of by-laws is necessary to introduce the reader to the customer/client of the author/ management analyst.

1. Purposes

Reference 6 states the purposes for which the MPYC is formed, namely: (a) To promote yachting and the common

interests of yachtsmen; (b) To develop and sponsor yacht racing and cruising; (c) To acquire, manage, and dispose of property, real and personal, for the Club; and (d) To do each and everything necessary, suitable or proper toward the accomplishment of any of these purposes, for the attainment of any of the objects emunerated in the by-laws of the Club or which shall at any time appear conducive to, or expedient for, the protection or benefit of the Club or its members.

2. Membership Composition

The MPYC membership is composed of eight classes or types, which are: absent (called inactive in the MPYC by-laws), honorary, life, regular, residual, military, intermediate, and junior.

An absent member is any member who moves away from the Monterey Peninsula for a period of not less than one year, foregoes rights or privileges of the Club, but secures the benefit that, upon his return, he may revert to his former membership class by payment of his dues and assessments for the calendar year in which he returns.

Honorary members, of which there may be no more than six, are those persons who have been unanimously elected by the Board of Directors for one year, subject to annual renewal. They have the privileges of the Club, but not the right to vote or hold office.

A life member may be elected by the Board of Directors, subject to a transfer fee from regular membership, of not less than $2,000.00.

Regular members are persons 25 years of age or more whose applications for membership have been accepted by the Board. They have all the privileges of the Club, including the right to vote and hold office.

Residual members are widows of deceased regular members. Upon the death of a regular member, his widow continues to have the same Club privileges that she enjoyed as his wife, providing that she pays to the Club the dues and assessments applicable to a regular member and has not remarried. She is not entitled to vote or hold office.

Military members are persons on active duty in the Armed Forces of the United States and stationed on the Monterey Peninsula who are accepted by the Board. They may defer payment of the initiation fee for three years, after which they must become regular members or resign. Military members have the privileges of the Club, but not the right to vote or hold office.

Intermediate members who are more than 17 but less than 25 years of age, have all the privileges of the Club, except to vote and hold office. The term of this type of membership is for one year, subject to annual renewal by the Board of Directors.

Junior members are under 17 years of age and have limited privileges of the Club as defined by the MPYC

House Rules. They do not have the right to vote or hold office, except in the Junior Organization.

The election of candidates to membership requires the sponsorship of two regular members who know the candidate personally and the submission of a written application along with initiation fees and dues. After the application has been posted in the clubhouse for 10 days and enquiries made by the membership committee, the Board of Directors decide on the application by secret ballot. A majority of affirmative votes is required to elect a member, but two negative votes are sufficient to reject any proposed membership.

The number of regular and military members is limited by the by-laws to 200. The by-laws require that at least 65 percent of the regular members must be yacht owners. The number of members in classifications other than honorary, regular, and military is determined by the Board of Directors.

3. Management

The management structure of MPYC has two levels, the Board of Directors and ten standing committees. The business and property of the Club is governed by the Board which exercises all powers except those reserved for the membership under the by-laws. The ten principal officers are a Commodore, Vice-Commodore, Rear-Commodore, Secretary, Treasurer, and five Directors, one of whom is the Staff

Commodore (the immediate Past Commodore). These principal officers are elected by the regular members for a term of one year and constitute the Board of Directors. The Commodore, Vice-Commodore, Rear-Commodore, and Staff Commodore are designated as "Flag Officers". The Commodore or other flag officer designated by him exercises supervisory responsibility for each committee. The preponderance of decision-making occurs at Board level.

The ten standing committees are Bar, By-Laws, Cruise, Entertainment, Finance, House, Junior Activities, Membership, Publicity and "Tiller", and Race. This level of management conducts most MPYC operations.

Policy formulation is shared between both levels of management, with final approval of policy and financial expenditures resting with the Board of Directors.

The Board of Directors normally holds its meetings on the second Wednesday of each month. These meetings are open to all active members who may have the privilege of the floor, but not to vote. Committees meet at the call of their chairmen. A general meeting of the membership is held annually in the month of December and at other times when announced by the Board of Directors.

4. Activities

MPYC "intra-club" activities comprise racing, cruising, instruction (including a junior sailing school), entertainment, dinning and libation.

All MPYC yacht races are conducted under the direction and control of the Race Committee. MPYC Championship Races consist of two series, Spring and Fall, and four other races: MPYC Regatta, Leffler, Outrigger, and Feast of Lanterns. The Spring and Fall Series consist of five races each. In addition to the above 14 races, there are four or five extra, but traditional, events: a pre-Spring Series "Tune-up Race"; an end of the Fall Series "Fiasco Race"; a Fourth of July Single Handed Race; and one Ladies Day Race, which in 1972, was followed by an MPYC Invitational Ladies Day Regatta. Conducted separately from the normal Race Committee operations are regattas for an 18' Mercury Division (with 16 sloops from MPYC), an annual Invitational "Paisano" Race for 8' El Toro sailing dingies, and several family fun days featuring El Toros. These races are scheduled as weekend events with nearly all occurring on Sundays.

The Spring Series races were conducted from mid-February through the end of April, whereas the Fall Series races will be conducted from mid-August through the first weekend in November. The other Championship races are held in May, June, and July. Additionally, "practice races" are held on Wednesday afternoons during the "racing season" - the period of daylight saving time from the last week in April through the end of September. Light conditions prevent weekday racing during the remainder of the year and the general lack of adequate wind precludes scheduling of races during the months of January and December.

Three MPYC cruises are scheduled on weekends during the year; they are: a Spring Cruise north to Moss Landing, a Summer Cruise south to Stillwater Cove, and a Columbus Day Cruise north to Santa Cruz. Picnics or barbecues are normally held at the cruise destination. The cruises are planned as inter-club events with dinning, dancing, and camaraderie at the yacht clubs of destination.

Inter-club activities consist of the above-mentioned cruises, membership in national, state, and regional yacht racing and yachting associations, and other events such as the informal Australia-U.S.A. Challenge Races and Navy Memorial Races. In particular, active participation by the four yacht clubs on the Monterey Bay - Elkhorn, Monterey Peninsula, Santa Cruz, and Stillwater - in their Monterey Bay Yacht Racing Association includes six offshore races held between mid-March and mid-September and an extraordinary dinner in January or February.

Effective but informal integration is achieved between MPYC and the Naval Postgraduate School Sailing Association. A few MPYC club members and others formed a corporation which initially donated three Shields racing sloops to the Naval Postgraduate School Sailing Association and then ordered two more. The MPYC has established a Shields Division, comprising the Navy Shields and two more owned by MPYC members. MPYC races normally include the Shields Division. All MPYC's military members as well as several regular members are also members of the Naval

Postgraduate School Sailing Association. The MPYC often performs a hail and greeting function whenever an important naval ship visits the City of Monterey, California.

Activities involving entertainment, dining, and libation generally require MPYC clubhouse use. For yachtsmen ashore, the Club shelters three operations: a bar and cocktail lounge, a mess and galley (called Aid), and a clubhouse with additional facilities for meetings, notices, Race Committee storage and a float for docking. Two or three dinners are generally scheduled each month by the Entertainment Committee and Club steward. About eight gourmet dinners each year are put on by the Spinnakers, a ladies club within the Club. Somehow, it works out that one dinner a month is international, prepared and served by volunteers, the Spinnakers, or the steward, and featuring menus of ethnic origin. Specifically, the bar and cocktail lounge is open daily from 1630 to 1830 hours and during all "aid" events. Aid events include everything from the post race suppers to the monthly international and steward's dinners and annual gatherings such as the Commodore's Reception, an Awards Dinner (traditionally held away from the clubhouse), and New Year's Eve Party. Such events are normally scheduled for Friday evenings. Food and bar service are available following all races, whether Wednesday evening after race dinners, Sunday MPYC Fall and Spring Series after race family suppers or other appropriate times after races. During the non-racing

season, weekly Tuesday luncheons are held for members and their community friends. Additional events are scheduled on a special basis by the Entertainment Committee.

An auxiliary organization of lady members or wives of members, known as the Spinnakers, functions as an autonomous association within the Club and is governed by its own by-laws. Each year they contribute to the improvement of the clubhouse from proceeds earned through their popular social functions.

B. NATURE OF THE PROBLEM

On 4 February 1972, the Monterey City Council called an open meeting to consider citizen's views on proposals for an enlarged marina at Monterey. The California State Department of Harbors had requested the city to conduct a public hearing to ascertain the views of citizens concerned. The initiative for this meeting was attributed to critics of the plan being designed by the United States Army Corps of Engineers. Attention had been focused on proposals resulting from public hearings of 11 July 1945, and 18 January 1954, that precipitated in 1959, a cost/benefit analysis of present and future utilization of the harbor should it be improved. Revisions and an updating of data was presented along with a General Design Memorandum for Monterey Harbor, California, by the United States Army Engineer District, San Francisco, California, in February 1970. Due largely to funding difficulties, the proposed improvements and

harbor expansion will not be accomplished in the next couple of years. Given the demand for marina facilities on the central California coast, however, the likelihood of expansion in the future is a virtual certainty.

The plan of improvement would provide for an inclosed and protected harbor by extending the existing breakwater and by constructing an "L"-shaped companion breakwater springing from shore at a point about 2,700 feet east of Municipal Wharf No. 2, leaving a 400 foot navigational opening between the breakwaters. According to the plan, this would provide a harbor area for a minimum of 800 vessels. The berthing and mooring facilities were tentatively allocated at 300 for commercial fishing and transient boats and 500 for recreational boats. Reference 7, also estimated that the number of recreational type boats in the area alone would grow from 560 in 1970, to 1300 by 1990.

If MPYC is to progress with the enlargement of the marina, continue its increasingly popular youth program and respond to the needs of an expanding sailing and motor boating community, the Club will have to grow financially as well.

A study appraising how MPYC could respond to the needs of an enlarged marina and relocated, expanded clubhouse was needed. On the basis of the present facilities and activities, current fiscal operations are little more than adequate. Other than fiscal accounting, no quantitative information was available concerning: (a) the achievement

of Club objectives, (b) how and when members spent their funds at the Club, and (c) what they did or would prefer. This thesis seeks to determine if a systems approach and "PPB" can be useful to Club management. Consequently, the author had to collect data concerning MPYC activities and sources of income so that the Board of Directors and the Club membership could make better decisions now and plan better courses of action for the future.

II. ANALYSIS FOR MAKING RATIONAL BUDGETING CHOICES

A. MANAGEMENT OBJECTIVES

Management objectives at the MPYC Board of Directors level may be simply stated as the conduct of Club operations in a manner to satisfy: (a) the purposes and stipulations set forth in the MPYC by-laws, (b) the human desires and drives of members, and (c) the needs of meeting the payroll and other financial obligations with a positive remaining balance. Resources available to MPYC are obviously limited. The anticipated growth of yachting and future expansion of the marina pose a dilemma for the MPYC: whether to continue as a small club and see other yachtsmen form alternative clubs or to recast its programs and operations so as to attract a larger, more diverse yachting public. Either direction has resource implications. The first precludes much growth in income; the latter poses substantial or excessive demand for capital. In order to choose, MPYC's management needs to establish, develop, and apply more extensively the links between plans and probable resource availability. With such a PPB approach to decision-making, the costs and consequences of various choices would need to be made as explicit and visible as possible, and the systematic use of this information encouraged.

B. PROGRAM STRUCTURE OF ACTIVITIES

"Programming" is the constructed link between planning and budgeting in the relatively new PPB system. Programming groups activities pursuing common objectives in such a manner that intended results may be better compared with actual outputs and related to budgeted and actual expenditures or other inputs. Though inputs may readily be measured in a market, outputs are frequently difficult to define and sometimes incapable of monetary measurement. The objective oriented PPB, which had its origin in the efforts of economists to relate benefits to costs in the public sector, provides a conceptual model whereby the relative worth of inputs to outputs may be compared and alternatives considered [Ref. 4].

Comparisons of alternative means of achieving a program or aggregation of programs require criteria of efficiency as an aid to determining preferable objectives, activities, or allocation of resources. Probably the most commonly acceptable criterion is monetary return, but other criteria may be pertinent or overiding. In any case, the aggregation of activities into objective oriented programs is essential to establishing the bridge between resource allocations and actual achievements.

After surveying the purposes, activities, and resources of the MPYC and consulting its key members, the author designed an initial structure of programs which served the

purpose of focusing on objectives and relating income and expenses within each category as well as in the corporately required aggregated form of the traditional financial statement. Though difficulties, similar to those found in the federal government [Ref. 3], were encountered in identifying output, selecting criteria, and segregating expenses, activities, and benefits, the scheme has the merit that it is understandable and acceptable to the MPYC Board of Directors. Improvements undoubtedly can be made in the light of experience and follow-on successful interaction and accord between the Board and a future management consultant/operations analyst. Additionally, a future analyst will be in a better position to devote attention to the public benefits generated by the Club and the possible opportunity costs to the public sector in terms of alternative uses of community space. (It is the author's opinion that if more activities of public benefit were identified and made known to the MPYC Board of Directors, the MPYC would grab the opportunity to be of further public service.)

Five programs arose almost naturally from 11 distinct activities and the Board's responsibility for the Club's financial integrity. Clubhouse activities providing shelter, bar and aid (a euphemism for a cooperative galley) involve all members, their families and guests, which imply a program for yachtsmen. The racing and cruising activities of both the MPYC and related inter-club associations are a program for yachting. The MPYC Junior Organization and

sailing school for young people constitute a program for youth. Board operations, external relations, development, and contingencies apply to all activities and programs, and hence suggest a program for common purposes. The accountant's balance sheet or statement of financial condition implies a program of proprietorship. Thus, we see five programs: ONE - For Yachtsmen, TWO - For Yachting, THREE - For Youth, FOUR - For Common Purposes, and FIVE - For Proprietorship. Appendix B displays the resultant program structure and accounting codes in a format that compares monthly progress against the prior year-end figures and the current year's budgeted amount. Each MPYC account is related to and identified with a program.

C. INCOME PRODUCING ACTIVITIES

The programs for yachting and youth are financially designed only to break even. Racing fees are set to cover the anticipated costs of MPYC and inter-club yachting, but extraordinary expenses attributable to contracting for personal services the MPYC rendered others, and inflation, keep Yachting in the red. Similarly, MPYC Junior Organization fees are set for their portion of the program for youth, but scholarships to send young sailors to competitions and clinics require income from outside the program. Indeed, all programs must receive budgeted amounts which come from three other types of club income.

The first type derived from general fees includes dues and building fund assessments, which are relatively fixed since they were last determined in 1970, and had previously held steady from 1963. Appendix A shows the 1972 rates per membership type. The total income from this source depends entirely on the size and composition of the membership. The second type of income is derived from the bar and aid. Such income depends upon the percentage of the membership that use the bar and dining facilities as well as their frequency of use. The third type is extraordinary income and includes initiation fees, conversion fees for transfers from intermediate to regular member or regular to life member, and income from interest earned in the Club's savings account. All such income depends upon chance and recruitment or the extent of savings.

The largest and most sensitive of the three types of income is the second, the aid and bar income, which was approximately $20,600.00 in 1971 as shown in Appendix C. The expenses relating to both aid and bar operations are in part, relatively fixed and, partly, variable. The percentages obviously depend upon the volume of sales. The service expense for aid consists of wages paid to the Club steward and his assistants for preparation, serving, and clean-up activities for aid events. Based upon past experience, the amount of time required to conduct two or three scheduled aid events per week is known and, hence, a relatively fixed monthly service expense occurs. The same

holds true for bar service expense, since a bartender is on duty for five to seven hours during the day of an aid event and for approximately two hours on most other days. The expenses for aid and bar supplies vary directly with the volume of aid and bar sales. For both operations, the percentage of net income to total sales increases as the volume of sales reach a point where the relatively fixed expenses have little effect.

D. MEASURES OF EFFECTIVENESS

Not only does the new program structure lend itself to analyses of trade-offs and choices among alternatives; it gives emphasis to continuing MPYC purposes and objectives. Means of measuring degrees of success in meeting these objectives through quantitative terms were considered.

An effectiveness measure for program one (for yachtsmen) would be the percentage of the active members – all membership types except Absent, Honorary, and Junior – that charge aid or bar purchases on a monthly basis. Such is one good indicator of clubhouse, aid, and bar use, because the Club discourages the use of cash and the vast majority of members use the Club's chit system.

One effectiveness measure for program two (for yachting) would be the percentage of available racing yacht owners in the Club that race or have their yacht raced on a monthly basis. This would include both MPYC and inter-club events. Another indicator would be the percentage of participation in Club cruises.

Program three (for youth) is similar in nature to program one, in that maximum participation by adult members' children would be a fair measure. An intermediate indicator might be the percentage of the junior membership that participate on a monthly basis in Club sponsored programs.

Program four (for common purposes) implies the notion of operational efficiency in a fiscal sense. Since MPYC management decisions and actions — or their lack of — affects all programs, the measure of effectiveness would be the attainment of a specified net return from all four programmed operations.

The effectiveness measure for program five (proprietorship) could be the achievement of an increasing net worth for MPYC or/and the setting aside of capital reserves for an expanded Clubhouse.

E. DATA COLLECTION

Means of collecting important management information concerning MPYC activities and sources of income were greatly facilitated when MPYC discouraged the use of cash for aid and bar purchases because cash was not as safe and convenient to handle. Distinctive chits were printed for both aid and bar. Bar chits provide space for date and day of purchase as well as amount, signal number, and signature. Aid chits have space for indicating whether the event was lunch, dinner, or other, the number of guests as distinguished from members and family, plus the amount charged, the date, day, signal number, and signature.

It was expected that the transition to the new system would take time and it did. The information/chit system was introduced in April. By the time the membership became used to filling in required information, bartender and aid personnel became accurate in checking and/or supplying information, and the accountant became accustomed to providing a final check when preparing the members' monthly statements of account, it was mid-July. It was found to be a cumbersome task to use the printed bar chits when 50 to 80 persons were using the bar facilities in conjunction with an aid event. The final system adopted requires the use of printed aid chits for all aid events, and permits the use of cash register tape as a bar chit whenever a bartender is on duty. A member then merely places his signal number and signature on the back of the cash register tape. The printed bar chits are used during periods of open bar (i.e., when no bartender is on duty). Incidentally, the number of persons utilizing the bar at any one time during open bar was seldom greater than ten. The modification provides an even more distinctive means of separating data regarding open bar periods from those when a bartender is on duty.

A statistics package for the computerized billing system was completed and used for the July billing. The billing system compiles, aggregates, and displays the information provided by the chits.

Attempts to extract desired comparable data from past records were fruitless and historic data was found not to be sufficiently reliable without time-consuming review and "reledgerizing" with the help of previous MPYC officers. One difficulty was encountered. The individual accounts receivable ledger was stolen along with other effects, from the Treasurer's car during the month of May. Considerable effort and time was required to reconstruct accurately those accounts. Such a problem should not arise in the future as the computerized billing system provides both the Treasurer and the accountant with one list which acts as an individual accounts receivable ledger. A duplicate copy is kept by the billing system operator as well as the data cards used for the billing. It is highly unlikely that both lists and the cards would disappear at the same time.

III. COMPUTERIZED DATA COLLECTION AND BILLING SYSTEM

The computerized data collection and billing system designed uniquely for MPYC was written in FORTRAN language and tested on the Naval Postgraduate School's IBM/360 computer. The first computerized billing was accomplished on June 20, 1972 for the month of May without any statistics package. The billing for June contained a small statistics package to produce desirable accounting information, while the July billing was run with a comprehensive package producing analytical and management information useful to the MPYC Board of Directors and individual committee chairman. The July billing program is presented in detail by Appendices D, E, F and G.

A. PURPOSE

The purposes in computerizing the data collection and billing system are fourfold and evidence the system's potential usefulness. The first is to accumulate and present desired financial information relating to MPYC operations. The second is to produce necessary accounting information in regard to individual member accounts. The third is to provide statements of account for individual MPYC members. The fourth is to reduce the amount of time and tediousness required to generate such management and financial services.

Cash, checks and chits have been accepted at the bar and for "aid," though the proportion of chits has grown since

April from about 50% to 85%. Formerly, these receipts were accumulated and passed on to the accountant on an intermittant basis. Payments on accounts were usually received by mail, although sometimes in person. Both cash and checks were accepted. All posting of the monthly charges and payments to the accounts receivable were done by hand. At the end of a month the accountant, using an adding machine, would total the volume of chit charges for the bar and aid as well as sum each member's account. Bills were periodically typed by hand for those accounts with a balance due, addressed and mailed, though not always monthly, as the voluntary work was time consuming. A listing of overdue accounts required extracting necessary information while scanning the accounts receivable ledger to determine which accounts needed to be billed.

The computerized information and billing system changed the form of the accountant's chores, but not the basic cycle. The accountant now records all individual chits and payments on accounts onto fortran coding sheets as they are received and submits the coding sheets for keypunching on a weekly basis. Upon completion of the keypunching of the last group of coding sheets for the month, the billing program is run. The accountant receives a stack of addressed bills for mailing, required accounting data, a complete listing of overdue accounts, and a listing of all charges and payments for each individual account. The detailed accounts receivable ledger

was eliminated. Additionally, key MPYC officers receive management information which is described below.

B. SYSTEM DESCRIPTION

1. Input

The input for a run of the information and billing program consisted of a deck of merged master and detail cards, providing a data card deck for the program.

Two master cards were required to hold essential information for an individual account. All 80 columns of the standard computer card were used. Detail cards contained information to produce statistical data as well as necessary information for updating the master cards and, hence, the accounts.

Master card type one records signal/account number, membership type, name, street address, and its master card identification code, while master card type two contains signal/account number, membership type, city, state, zip code, membership type code, sailing school code, account balance, account status, and its master card identification code. The specific columns used for each type are listed in Appendix E. Likewise, column designations for signal/account number, membership type, transaction code, type of transaction code, amount of transaction, date and day of transaction, type aid event, number of persons for aid event, and detail card identification code for detail cards are listed in Appendix E.

The codes used to represent some of the above mentioned information are listed in Appendix F.

2. Output

The output of the information and billing system was categorized according to use. The three categories are master cards for the input of the next billing, accounting data, and management information beyond normal accounting data.

a. Master Cards

The computer program punches a new deck of master cards which is used as a part of the input for the following month's run. These master cards are identical to the previous ones, except that they reflect the current account balances and their overdue status.

b. Accounting Data

Obtained indirectly from the system is a list of master and detail cards used as input to the billing program itself. This was accomplished by running the merged deck of master and detail cards with a short computer program for reading in and then listing out all the information of the merged deck. The list contained all accounts in numerical sequence and provided more detailed information than the accounts receivable ledger previously used. The list is a special ledger for individual accounts receivable and replaces the former detailed ledger of the MPYC accountant. For each account, all information on master cards one and two is listed and followed by detail card information

in the order of payments, charges to bar, charges to aid, and other charges. An example appears in Appendix D.

The primary advantage of the above-described list over the late ledger is the presentation of all transactions by date, in lieu of one entry for payments and one entry for a monthly charge for each account, plus its timely or overdue status, including the previous month's balance. Since all chits are returned to club members with their bill, the list enables the accountant to respond more accurately and confidently to inquiries from some members concerning their statements of account.

Information concerning previous and ending balances for the accounts receivable, total payments, and charges for the month's operations are obtained from the computer program and appear in Appendix D. The previous balance figures for a given month are the same as the ending balance figures of the previous month, unless account adjustments have been made and reflected by changing the master cards for those accounts. Adjustments are necessary when a chit is charged to the wrong account, a bad debt written off or the like.

A complete list of overdue accounts is provided by the computer program. This list contains the signal number, membership type, name, overdue balance, and current balance for each overdue account. The ordering of the list is such that all accounts one month overdue are listed first, those accounts two months overdue listed next and so

on ending, with summary information after the six months or more overdue category. A desirable feature of the computer program is that it lists only those categories which have overdue accounts in them. The computer program is written so that the overdue status is incremented by one month for any account that was not brought to a zero balance after payments received were deducted.

c. Management Information

The computer program prints out four tables which are found in Appendix D.

Table 1 details the charging trends of MPYC membership for the month of July and breaks out and sums the number of members in each membership type. The seven membership types are then aggregated into four groups and the number and percentage of each group who charged at the bar and/or for aid are given. The total number of members who charged and their percentage of the total membership and "active" membership are displayed, along with the average and standard deviation for bar and aid charges.

Table 2 details the volume of charges for bar and aid by calendar date. Table 3 displays the same information differently, for the charges are aggregated and shown by days of the week.

Table 4 breaks out the volume of charges for aid in more detail than the other tables. The table shows the daily volume of aid charges by type of aid event and the number of persons served.

3. Procedural Steps For A Typical Month's Billing

a. Prior to Billing

(1) Step One. Keypunch and verify detail cards using the fortran coding sheets which are received from the accountant on a weekly basis.

(2) Step Two. Ascertain from the accountant if any account adjustments or name and address corrections are necessary. Make adjustments to the master cards obtained from the previous month's billing.

(3) Step Three. Change the program cards necessary to reflect the new month's billing as follows: replace the data statements for the date vectors DATEC and DATEH with new ones using the new statement of account date; replace the date for previous balance on continuation cards two and three of both format statement numbers 911 and 965; replace the old advertising message on format statement number 914 with a new message.

b. Card Sorting and Computer Runs

(1) Step One. Sort the detail cards by the date of transaction i.e., columns 30 and 29. Then sort the detail cards by type of transaction i.e., columns 11 and 10. The final sort involves both master and detail cards. Place the deck of detail cards behind, i.e., on top of the deck of master cards and sort the entire stack of cards by signal number i.e., columns 4 through 1. The result is a merged deck of master and detail cards sequentially ordered by signal number. Each account is in the following order:

master card type one; master card type two; detail cards for payments by date; detail cards for bar charges by date; detail cards for aid charges by date; and detail cards for special assessment by date.

(2) Step Two. Make a computer run of the listing program using the merged deck of cards; visually scan the output list for correct card order; and then run the billing program with the merged deck.

c. Disposition of Output

(1) Step One. Interpret and store the new master card deck for next month's billing.

(2) Step Two. Trim excess paper from the bills. Deliver the bills, card list, and accounting information to the accountant and the management information to the Commodore.

4. General Description of Program Steps

The program utilizes subroutine REREAD which is in the computer's subroutine library. This subroutine permits the information read and stored at the addresses specified by a read statement to be reread into another format and addressed by other identifier names as many times as desired, providing another read statement with unit numbers other than 99 was not used in the interim.

The program starts by initializing the vector and matrix arrays and necessary identifier names. It then calls subroutine REREAD and reads the first data card into the buffer. A check is made to determine whether the card is a

master or a detail card and program control is given to the part of the program that processes the type of card just read. After the card information is processed, the program reads another data card and continues the cycle of reading and processing the merged data deck one card at a time, until all data cards have been processed.

a. Master Card Processing

As soon as a master card is encountered, a check is made to determine if the previous card that was processed is a detail card. If affirmative, program control is given to the section for final bill processing of the previous account, since there are no more detail cards to be processed for that account. If the previous card is a master card, another check is made to determine if two matching master cards proceeded the current master card. If there were two matching master cards, then program control is given to the section that prints a bill for accounts that have no transactions. Otherwise, the data stored in the buffer is read into master card one format and the next card is read into master card two format. A check is made to insure that both master cards have the same account number. When the master cards do not match, an error message is printed out, the first card is disregarded, and the next card is read at the beginning of the program. When the cards match, some intermediate data is collected and then the next card is read at the beginning of the program.

b. Detail Card Processing

As soon as a detail card is encountered, the data stored in the buffer is read into detail card format and a check is performed to insure that it belongs to the account being processed. If the account number is incorrect, an error message is printed, the detail card is ignored, and the next card is read at the beginning of the program. Otherwise, a check is performed to determine if the transaction is a charge to bar or aid. Transactions other than charges to bar or aid are transferred to the program section that prints the bill heading and body labels for the statement of an account with a transaction. Transactions for bar and aid are processed for data, the charges accumulated for the account, and then transferred to the section for bill heading and labelling.

The heading and labelling section performs its stated function only on the first detail card for a given account, but it checks all detail cards to determine if the transaction is a payment or a limited occurence charge e.g., dues or a special assessment. When the transaction is a payment, the amount is deducted from the previous balance, accumulated as data and printed on the bill. Then the next data card is read at the beginning of the program. When the transaction is a limited occurrence charge, it is printed on the bill and then control is transferred to the read statement at the beginning of the program. An aid or a bar transaction can cause heading and labelling of a bill to

occur, but not any other processing, for control is passed to the beginning of the program to read the next data card.

The program section that accomplishes the final processing of the statement of an account having transactions, prints the accumulated amount of the bar and aid charges first, the new account balance second, accumulates some intermediate data and statistics, and then types the advertising message. Program control is then transferred to the section that processes accounts having no transactions and the overdue accounts.

The section processing accounts with no transactions updates the account status, if necessary, and then determines if a bill has already been printed. If the account has not been billed, the entire bill (i.e., heading, body, and advertising message) is printed, for no transaction means that the previous balance is the new balance. Once an account has been billed, data is stored if the account is overdue, intermediate data is accumulated and new master cards one and two are punched. Until the normal exit flag is set by the first read statement at the beginning of the program, there are more data cards to be processed. Program control is transferred to the section that processes master cards at the point where it reads the data stored in the REREAD buffer into master card one format. Whenever the normal exit flag is set, no more data cards remain to be processed and program control passes to exit number one,

which calculates final statistics, aggregates a portion of the data, prints out program summaries and tables, and terminates the program.

Exit number two is never used for a normal program run, but may be used whenever new statistics packages are tested in the program. This usually occurs wherever an array or identifier name has not been properly "initialized" at the start of the program, and the program, as a result, tries to read beyond the last data card. Exit number two is entered through the end option used on the second read statement in the master card processing section. An error message is printed and the program is terminated.

IV. PROPOSED COMPUTERIZED ACCOUNTS SYSTEM

A computerized accounts system invoking the same concept that was applied to the billing system can be programmed without much difficulty, using the general procedure of updating a deck of master cards from a deck of detail cards.

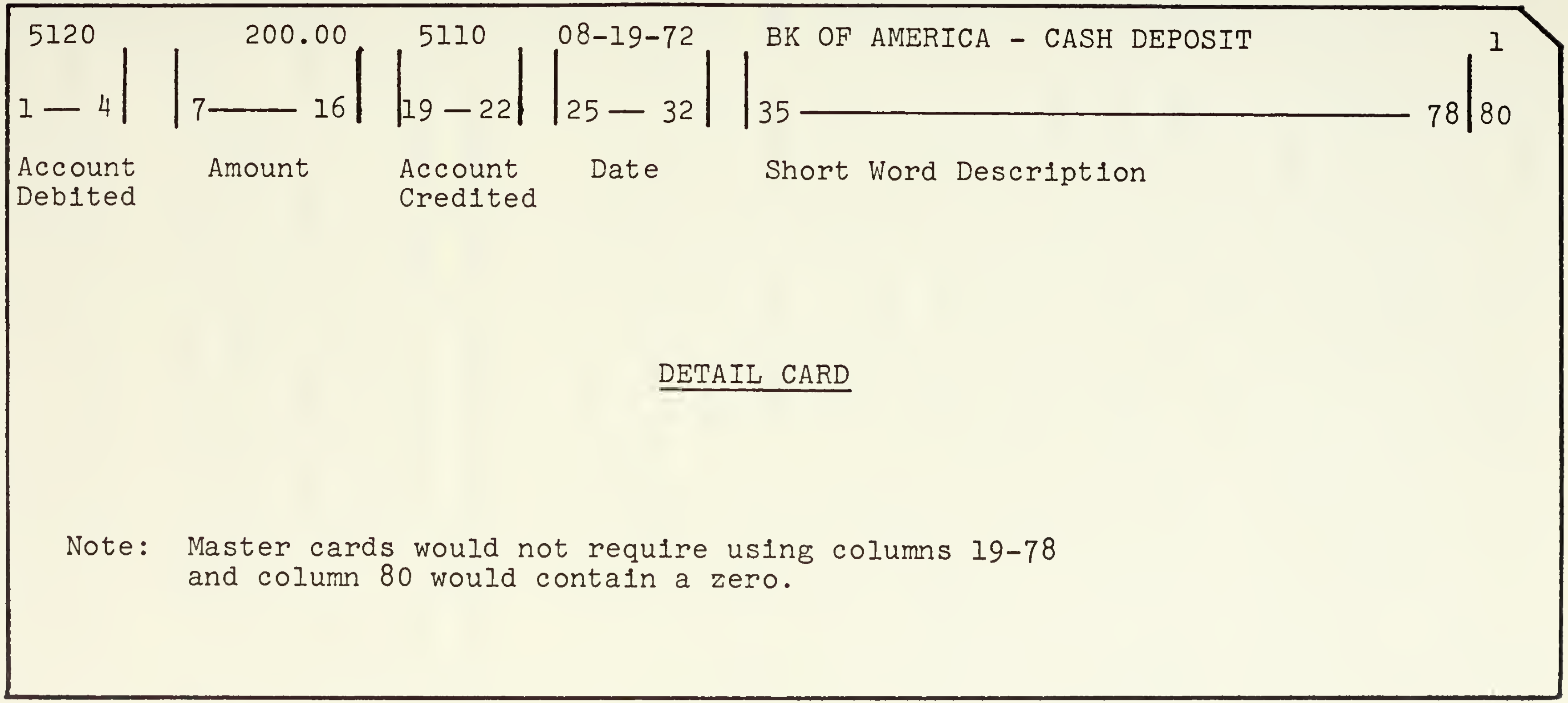
Input would be a deck of data cards consisting of a group of master cards followed by a group of detail cards.

The master cards would contain an account number, the ending balance from the previous month, and an identification code. Detail cards would contain two account numbers, an amount for debit to the first account number and for credit to the second account number, date, a short word description of the transaction, and an identification code. Figure 1 depicts example card layouts.

A vector array would be dimensioned for each account classification. For example, accounts 5100 - 5150 and 5210 - 5255 of the financial condition section of the accounts could be identified and dimensioned as FCOND1 (5) and FCOND2 (10). When the program checks the account number 5150 encountered on a data card, the first two integers, 51, imply FCOND1 and the 3rd integer which is five implies that the fifth location of that vector array is the storage location for the entire account.

The vector arrays representing the accounts would be initialized by the first part of the data deck, which

FIGURE 1 - EXAMPLE CARD LAYOUTS



5120	200.00	5110	08-19-72	BK OF AMERICA - CASH DEPOSIT	1
1 — 4	7 — 16	19 — 22	25 — 32	35 — 78	80
Account Debited	Amount	Account Credited	Date	Short Word Description	

DETAIL CARD

Note: Master cards would not require using columns 19-78 and column 80 would contain a zero.

Above detail card represents a deposit of cash into the MPYC checking account.

contains the master cards. These initial values would be changed by the amounts contained on the detail cards, in accordance with the program's instructions. Two additional vectors dimensioned the same as each account vector to which it is related would be used to record the accumulated debits and credits for the account vector.

Program instructions would be written so that the amount values on the master cards initialize the account vectors, whereas the amount values on each detail card would be added to the vector locations accumulating debits for the first account number on the card and accumulating credits for the second account number on the card. After all data were stored, the account vectors would be printed out, the appropriate addition or subtractions of the accumulated debits and credits from the values in the account vectors would be done, and finally the new values of the account vectors would be punched on new master cards as well as printed out.

The resulting output would be the beginning account balances, the total amount of debits and credits to each account, and the ending account balances. Other data such as the number of debits or credits and statistics could be added. The new deck of master cards containing the current account balances would be ready for the next month's run of the program.

The accounting books could be eliminated and replaced by two lists that would be the record of the double entry

bookkeeping. By sorting the detail cards by date of transaction and then sorting sequentially by the first account number on the cards, a list would be run resulting in a print-out of all debits sequentially ordered by account number and by date within each account. Resorting by date and on the second account number would provide a similar list for the credits.

The accountant's duty of making similar entries on two different ledger accounts, one a debit and the other a credit, for every transaction followed by balancing the accounts at the end of the month would be replaced by making only a one line entry on a standard fortran coding sheet. The final task would be to transfer the account balances from the computer print-out to preprinted financial statement forms detailed in Appendix A.

The lists would act as the accountant's journal and if one list was run with the cards sorted sequentially by date only, that list would in fact be a journal in proper chronological order. The computer program's printed output would be the accountant's ledger. Both the journal and the ledger are the basic books of a double entry accounting system and are essential to a complete and efficient accounting system as described in most elementary accounting texts.

V. A PREDICTION MODEL

Data should be collected over at least an entire year in order to depict and understand the relationships necessary to the use of a prediction model. The computerized data collection and billing system was, in part, set up to provide a means of acquiring, analyzing and communicating the available data.

The data will certainly reflect the seasonal nature of MPYC operations; the number of distinct periods into which the year should be divided will have to be determined after reviewing the data. There could be only two periods, race season and non-race season. The maximum number of distinct periods would appear to be four: (1) Winter – December and January, (2) Early Spring – pre-race season, (3) race season, and (4) Late Fall – post-race season.

Relationships between expenses and income for both bar and the aid could be determined by analysis of the data. For each period, the average aid and bar charges, percentage of active members that charge aid and bar, and the percentage of expenses to income for both aid and the bar operations could readily be determined. The remaining information required would not require analysis to obtain.

The Junior Organization is not considered to be an income producing activity for the MPYC as a whole and is therefore not included.

Operationally, profit or loss is the sum of the income based upon total membership size and the net income or loss from aid and bar operations, minus total expenses not directly related to aid or bar operations. The net income or loss from aid and bar operations is related to the percentage of the active membership that utilize aid and bar facilities.

A. NOTATION

i = index for membership type, $i = 0, \ldots, 6$

n_i = number of i type members

N = number of active members

D_i = dues for membership type i

B_i = building fund contribution for membership type i

I = initiation fee

N_{new} = number of new members

k = number of seasonal operating periods, $k = 1, \ldots, 4$

$\overline{B}_k$ = average bar charge for period k

$\overline{A}_k$ = average aid charge for period k

P_{bk} = percentage of active members that charge bar for period k

P_{ak} = percentage of active members that charge aid for period k

p_b = percentage of bar expenses to bar income

p_a = percentage of aid expenses to aid income

F = total expenses not directly related to aid or bar

$$\sum_{i=2}^{6} n_i = N$$

$(D_i+B_i)n_i$ = dues and building fund income for membership type i

$P_{bk}N\bar{B}_k$ = expected bar income for period k

$p_b(P_{bk}N\bar{B}_k)$ = expected bar expenses for period k

$P_{ak}N\bar{A}_k$ = expected aid income for period k

$p_a(P_{ak}N\bar{A}_k)$ = expected aid expenses for period k

IN_{new} = initiation fee income

B. THE MODEL EQUATION

Expected profit/loss =

$$\sum_{i=0}^{6} (D_i+B_i)n_i + \sum_{k=1}^{4} [(1-p_b)(P_{bk}N\bar{B}_k)+(1-p_a)(P_{ak}N\bar{A}_k)] - F$$

IN_{new} is a separate consideration.

C. USES

When the MPYC has collected and analyzed the data from previous years and assuming no substantial changes, the Club's management could insert actual figures or values respecting the bar, aid and percentage of use. Then the effect of membership size, dues and building fund assessment upon expected profit or loss could be determined by varying the values of D_i, B_i, and n_i, separately or together.

For purposes of planning and decision-making, membership size might be assumed to remain the same and the effect

studied of varying the aid and bar operations with a view to varying the percentage of membership use of aid and bar facilities. Alternatively, one might assume that aid and bar operations attract a constant percentage of active members. If a specified profit were then desired, say, to meet a future building program, the required size of membership could be determined. Various trade-offs could likewise be considered. Put succinctly, any variable could be altered while others are held constant in order to determine the effects upon the remaining variables. The exact manipulation would depend upon the questions MPYC's management asked and the assumptions it desired to make. The sail could be cut to the size of the cloth or vice versa.

VI. SOME MPYC POLICY ISSUES

A. CLUBHOUSE UTILIZATION

The size of the clubhouse is about optimal for the current sail racing members and their activities, but the facilities appear under-used by those with other yachting interests. For aid events during race season, 40 to 80 members usually are in attendance approximately twice a week. Throughout the year, sit-down dinners comfortably accomodate forty to fifty persons on an average of twice a month. As many as 80 persons can be seated in shifts, which is done infrequently. A substantial increase in racing members, or their percentage of participation, could not be readily handled. But facilities are available for power boaters, anglers or learning yachtsmen who could gather on one or the other of the four or five days a week the clubhouse is now little used. In the event of a major increase in racing members — and MPYC is first and foremost committed to sail racing — an enlargement or replacement of the current clubhouse must be considered. The clubhouse might be expanded in a northerly direction along Municipal Wharf No. 2, which would double the size of the dinning area, or the clubhouse doubled by adding an additional level above the current one, which would increase the dinning area about 400 percent. Someday, a new and larger site and Clubhouse may be established at the end of the planned mole of the future expanded marina.

B. AID POLICY

Present aid policy and operations appear optimal for the current membership. The number of aid events presently conducted on a monthly basis is influenced by tradition and limited by saturation. A major constraint, however, is resources measured in the professional steward's time. The present schedule was determined by observing the amount of time required for conducting an event for 40 to 50 persons. This led to an estimate of the service cost for one event, using the wage rate for aid service personnel. When the budgeted monthly amount for aid service expense was divided by the service cost of one event, the result indicated that about ten events per month or two and one half per week could be held.

The charge for an aid event is determined by adding to the calculated service expense an estimate of the supply expense associated with 45 meals and then dividing by that number. The resulting charge is just enough to cover expected average expenses, but will lose or profit when less or more than 45 meals are served. In any event, prices are substantially lower than those found for comparable quality in restaurants of the community. The above method of pricing is proving to be a good rule of thumb for operating over time at zero profit.

Evidence also indicates that the number of aid events conducted per week is about right. July data shows that

the present membership probably would not heavily patronize the aid facilities more than twice a week. The attendance on Sunday, July 30th was about one-third of the attendance of the previous Friday and about one-fifth of the attendance on the previous Wednesday. This saturation effect will probably be supported in the future as additional data are collected.

C. BAR POLICY

Much discussion has been generated at recent Board meetings over what days a bartender should be on duty or whether an open bar on other days should be continued. July data shows that on days when aid events were not scheduled, the bar income barely covered the bartenders wages and that on Mondays and Tuesdays it was generally less. It is recommended that until more data becomes available through the management information system, a bartender be kept on duty during all aid events and for such times on other days as would appear compensated by sales over a sixty (60) day period. As for the efficacy of an "Open Bar" at times a bartender is not on duty, more time is needed to measure separately its return to the Club.

D. RESERVES FOR DEPRECIATION

Depreciation for the building, equipment, furniture, and boats has been calculated over time and the value of assets comparably reduced. No reserve for depreciation was established in the ledger accounts until 1972. As yet,

no funding of these reserves has taken place. It is recommended that the MPYC begin funding reserves for depreciation and place such funds in a special savings account or otherwise invest them so that capital will be available to replace depreciated assets when desirable.

E. NEED AND CHARACTER OF MEMBERSHIP EXPANSION

1. Immediate Membership Expansion

The City of Monterey and its Harbormaster maintain a list of boats or ships berthed in the marina. Its examination indicated that during June and July of 1972, approximately 385 craft of all types, including commercial fishing, sport fishing, outboards and recreational yachts, such as sail and cruising power boats, used the mooring slips. MPYC members own 87 boats, 75 of which are normally berthed in slips rented by the City of Monterey and made subject to taxation by the County of Monterey. After reviewing his boat list, the Harbormaster — who is a retired Captain of the U.S. Coast Guard — estimated that the number of non-MPYC boat owners which could become members came to approximately 80.

About dusk on the afternoon of the 27th of August, a visual count was taken of the recreational type boats that could be associated with yacht clubs. The number of sailboats in the slips was 108. The number of power boats without fishing gear rigged on board was 55. The number of sailboats owned by MPYC members is 87 and the number of

power boats is 11. The above figures infer that there are approximately 21 sailboats and 44 power boats whose owners are potential MPYC members. Admittedly, the analysis of the potential membership population is crude, but it does suggest where emphasis should be placed.

The approximate size of the potential membership population in the Monterey marina is 65. Since about 80 percent of the sailboats and only 20 percent of the power boats in the marina belong to MPYC members, the emphasis for new members should be directed toward power boaters. MPYC must be considered a racing sailing yacht club when judged by its activities and the type of yachts owned by the current membership. Programs and activities for power boaters would have to be broadened or created in order to attract the largest part of the potential membership population. Because of the constrained facilities, activities should normally be scheduled on days not used for sail racing events. The aid and bar operations would benefit substantially from this additional activity, because fixed costs are already being met.

2. Future Development

There are numerous coastal communities which have several yacht clubs, each catering to a specific type of yachtsmen. Few such specialized clubs sharing one location are financially secure or capable of substantial growth. One club might be for cruising sailing yachtsmen, another for racing sailing yachtsmen, a third for cruising power

boaters, and a fourth for anglers. Newport Beach and San Francisco are two California locations where this can be observed.

An expanded Monterey harbor will be rapidly filled with all types of boats, the majority of which will be recreational [Ref. 7]. The Monterey Harbormaster currently limits his waiting list for marina slip spaces to 300 supporting the validity of the previous assertion. If MPYC were to offer attractive programs to additional yachtsmen with interests in cruising, power boating, angling and dinghy sailing, MPYC would seize a unique opportunity to broaden its membership, serve better the interests of all local yachtsmen and strengthen its financial underpinnings as the harbor is expanded and improved.

A small unincorporated group, the Southern Cross Sailing Group, has already been formed for cruise sailing. The U.S. Coast Guard is encouraging the formation of a powered Auxiliary. Yachtsmen generally declare themselves to be sailors or powermen, but members of either group may spend more time cruising or racing. Keel boat sail racing in MPYC is accomplished beautifully. What needs development is cruising for sailors and powermen; racing for dinghy sailors and motor jockies; and some program for anglers. Of course, some MPYC members will find interest and involvement in several such activities, but it is likely that each activity will attract its own adherents and generate its own circle within the club.

F. PUBLIC SERVICE ASPECTS

This important aspect of the MPYC's role has received the least amount of detailed attention by the consultant researcher due to the time required for establishment of the information and billing system and completion of the pilot study. Some public aspects have been alluded to earlier, for example, the number of MPYC boat owners renting marina slips from the City of Monterey and the percentage of recreational type boats in the harbor that belong to MPYC members.

Many MPYC members belong to civic and fraternal organizations in the surrounding community, and a few faculty members from the Naval Postgraduate School belong to both MPYC and the Naval Postgraduate School Sailing Association.

The incumbent MPYC Commodore initiated the formation of the Monterey Marina Committee, which has one former MPYC Commodore as its chairman and two more as members. Six MPYC members in all belong to the committee as well as the president of the Monterey Fishermen'a Association and representatives of the Southern Cross Sailing Group, a marine insurance company and other local interests. The committee is open to all groups that have an interest in Monterey Harbor. The committee is currently studying the issues arising from harbor facility utilization, the use and costs of the launching ramp, parking facilities, the need for more slips and associated problems of fees, transient guests and so forth.

G. AREAS FOR FUTURE STUDY

In addition to continuing the data collection program and performing subsequent analyses follow-on researchers should consider using the median and the number of observations above and below the median as measures of central value and dispersion for the aid and bar charges. This would be more meaningful to the MPYC management than using the arithmetic mean and standard deviation. The July data for bar charges in table 1 of Appendix D only infers that most charges were below the average charge, and a few were well above the average, whereas the number of charges above and below the median would have been more descriptive of the distribution.

There appears to be an elastic demand for MPYC membership based upon the level of dues. A determination of this demand function would be valuable for inclusion into the prediction model.

The public aspects need much more detailed investigation. Inquiry and analysis should include issues arising from Monterey Harbor being a public recreational facility, with attention given MPYC's component of the estimated annual return and what should (or could) be maximized by MPYC. Social and community-building aspects should be considered, especially with respect to youth in the local area. Other questions might include additional uses of the harbor and how one may interfere with other uses, such as water skiing

versus fishing, swimming and beach use. The purpose should be to point to the optional development of the Monterey Marina and Bay and the role of the Monterey Peninsula Yacht Club in the future.

VII. CONCLUSIONS

The Monterey Peninsula Yacht Club has developed in twenty years from a roster of names who met intermittently into the most active keel yacht racing yachtsmen's social organization on the Central California Coast north of Santa Barbara Channel and south of San Francisco Bay. The most significant historical event in MPYC's first two decades was the establishment of a clubhouse, conceived by 1958 under the administration of Commodore Jacques Emrick; developed through the leadership of Commodore Ed Muniz, 1963; decided by 1964 under Commodore Frank O'Neal; built throughout 1965 with the direction of Commodore Jimi Womble; and dedicated in 1966 by Commodore T. Arnold Smith.

Subsequent Commodores have developed and rendered "traditional" yachting and social programs which the clubhouse made possible. John D. Riggin made the clubhouse into a "Yacht Club"; Peter Stuber helped everyone have fun, and Harvey Kilpatrick gathered in the youth and turned them into sailors. Charles Jacobson contributed "management" and pushed the racing program to its present fulness; Allen White provided daily steward service and broadened the membership both offshore and at the bar; and Robert von Pagenhardt achieved greater membership participation in Club functions and, incidentally, stimulated the new management information and billing system derived from this thesis.

The MPYC now appears to face another great decision: whether to continue as a small, albeit successful, club emphasizing keel sailboat racing and watch other yachtsmen form alternative clubs or to augment its programs and operations so as to attract other yachtsmen whose interests are the sea, but in angling, power boating, cruising or dinghy sailing. One issue is homogeneity or diversity of membership. Another is scheduling of functions, since the present clubhouse is now crowded on race days, but little used four or five other days a week. Financially speaking, the choice is between barely supporting part-time service with part-time galley and bar stewards or affording full-time care and Club steward services, while also accumulating monetary reserves for future expansion or replacement or facilities and clubhouse.

Further in the future there will be another great decision. With the anticipated growth of the marina, the MPYC will have to decide whether to hold itself to the present attractive, but small, clubhouse or to enlarge its facilities either by substantial additions or relocation. The option of enlargement may only be available if the Club evolves along lines suggested as the latter choice in the previous paragraph.

Whatever choices are made, enquiry and analyses are required now by the MPYC in order to make rational and wise decisions. The use of the new information and billing

system and of the proposed prediction model will facilitate both the necessary enquiry and analyses and provide assistance to those exercising judgment today and tomorrow.

The successful, if partial, implementation of modern managerial and analytical concepts of "Planning, Programming and Budgeting" into the Monterey Peninsula Yacht Club indicates that such complex techniques are both relevant and useful to a small, semi-public, participative, non-governmental organization.

APPENDIX A

1972 MEMBERSHIP ASSESSMENT RATES

(In dollar amounts)

MEMBERSHIP TYPE	INITIATION or TRANSFER FEE	DUES/BLDG. FUND
Absent	none	20
Honorary	none	none
Life	2,000	none
Regular	200	30/50
Residual	none	30/50
Military	none	30/50
Intermediate	none	20/20
Junior	2.50	5

Initation fee applies to new members only. Transer fee applies to a member changing his membership type e.g., Intermediate or Military to Regular. Both types of fees are a one-time assessment against a member, and the only difference between the two is the context in which it is applied.

APPENDIX B

MONTEREY PENINSULA YACHT CLUB

POST OFFICE BOX 91 • MONTEREY, CALIFORNIA 93940

Planning, Programming, and Budgeting Form
for Management of MPYC Programs

Operating Statement
January 1 to July 31, 1972

CODE	1971 ACTUAL	1972 BUDGET				
1000			PROGRAM ONE - FOR YACHTSMEN			
1100			CLUB HOUSE			
			INCOME			
1110	5,390	6,010	Building Fund		6325.00	
			EXPENSES			
1120	3,915	4,000	Rent, Property Taxes, Utilities	1554.14		
1130	969	890	Interest	371.00		
1140	706	700	Insurance	1166.00		
1150	1,543	1,800	Repairs & Maintenance	338.55		
1160	1,589	858	Cleaning Service	704.16		
1170	1,228	1,224	Depreciation for Building	716.59		
1180	203	180	Depreciation for Equipment	103.10		
1190	342	240	Depreciation for Furniture	138.24		
					5091.78	
	(5,105)	(3,882)	NET Profit from Club House Operations			1233.22
1200			AID			
			INCOME			
1210	6,298	8,388	Contributions		4455.20	
			EXPENSES			
1220	6,640	6,000	Aid Supplies	2595.72		
1230	639	2,000	Aid Service Expenses	1715.09		
					4310.81	
	(981)	388	Net Profit from Aid Operations			144.39
1300			BAR			
			INCOME			
1310	14,367	12,500	Tariff (or contributions)		6552.06	
			EXPENSES			
1320	7,207	5,760	Liquor & soft drinks	2404.45		
1330	460	500	Other or miscellaneous supplies			
1340	3,318	3,000	Bar service expense	2208.68		
1350	741	560	Licenses & taxes	640.56		
					5253.69	
	2,641	2,680	Net Profit from Bar Operations			1298.37
	(3,445)	(814)	NET PROFIT FROM PROGRAM ONE OPERATIONS			2675.98

2000			PROGRAM TWO - FOR YACHTING			
2100			MPYC YACHTING			
			INCOME			
2110	1,047	1,300	Racing Fees & other Income		1690.00	
			EXPENSES			
2120	1,621	900	Trophies	74.60		
2130	475	250	Race Supplies & Equipment	126.31		
2140			Other Expense			
	(1,049)	150	Net Profit from MPYC Yachting Operations		200.91	1489.09
2200			INTER - CLUB YACHTING			
			INCOME			
2210			Inter-Club Contributions			
			EXPENSES			
2220	208	150	Association Dues	169.00		
2230			Other Expense			
	(208)	(150)	Net Profit from Inter-Club Yachting Operations		169.00	(169.00)
2300			DINGHY FLOAT OPERATIONS			
			INCOME			
2310			Fees & Contributions			
			EXPENSES			
2320		200	Repairs & Maintenance	108.80		
2330	302	300	Depreciation for Float	175.00		
	(302)	(500)	Net Profit from Float Operations		283.80	(283.80)
	(1,559)	(500)	NET PROFIT FROM PROGRAM TWO OPERATIONS			1036.29

3000			PROGRAM THREE - FOR YOUTH			
3100			MPYC JR. MEMBERSHIP			
			INCOME			
3110			Fees & Contributions			
			EXPENSES			
3120			Junior Expense			
			Net Profit from Jr. Membership Operation			
3200			SAILING SCHOOL			
			INCOME			
3210	1,368	1,200	Fees & Contributions		950.00	
			EXPENSES			
3220	630	700	Sailing School Instructors	495.00		
3230	180	180	Depreciation for Boats	105.28		
3240	466	320	Other Expenses	188.41	788.69	
	92		Net Profit from Sailing School Operation			161.31
	92		NET PROFIT FROM PROGRAM THREE OPERATIONS			161.31

4000			PROGRAM FOUR - FOR COMMON PURPOSES			
4100			BOARD OPERATIONS			
			INCOME			
4110	3,550	3,950	Dues	3935.00		
4115	633	150	Interest and Miscellaneous Income	254.00		
					4189.00	
			EXPENSES			
4120	1,523	2,200	Printing, Supplies & Bookeeping	1735.97		
4130	1,748	620	Miscellaneous	577.47		
4140			Uncollectable Accounts	22.60		
					2336.04	
	912	1,280	Net Profit from Board Operations			1852.96
4200			EXTERNAL RELATIONS			
			INCOME			
4210			External Relations Income			
			EXPENSES			
4220			External Relations Expense			
			Net Profit from External Relations			
4300			DEVELOPMENT AND CONTINGENCIES			
			INCOME			
4310	4,052	2,400	Initiations and Conversion Fees		1000.00	
			EXPENSES			
4320			Specified Support			
	4,052	2,400	Net Profit from Development & Contingencies			1000.00
	4,964	3,680	NET PROFIT FROM PROGRAM FOUR OPERATIONS			2852.96
	52	2,366	NET PROFIT FROM ALL OPERATIONS			6726.54

5000		STATEMENT OF FINANCIAL CONDITIONS July 31, 1972			
5100		CURRENT ASSETS			
5110		Cash on Hand		100.00	
5120		Checking Account - Bank of America		443.88	
5130		Savings Account - Wells Fargo		2600.69	
5140		Accounts Receivable		4079.19	
5150		Bar Supplies		492.41	
					7716.17
5200		FIXED ASSETS			
5210	500	Equipment	2472.08		
5215		Less Reserve for Depreciation	561.27	1910.81	
5220	680	Furniture	1558.64		
5225		Less Reserve for Depreciation	155.50	1403.14	
5230		Boats	904.34		
5235		Less Reserve for Depreciation	737.02	167.32	
5240		Float	2348.84		
5245		Less Reserve for Depreciation	175.00	2173.84	
5250		Building	30711.85		
5255		Less Reserve for Depreciation	7575.44	23136.41	
					28791.52
		TOTAL ASSETS			36507.69
5300		LIABILITIES			
5310		Federal Witholding Tax Payable			
5311		State Witholding Tax Payable			
5312		FICA Payable		19.83	
5313		SDI Payable		3.84	
5320		Accounts Payable			
5330		Notes Payable - Personal		4000.00	
5340	(2,500)	Notes Payable - Wells Fargo		4000.00	
					8023.67
5400		NET WORTH			
5410		Capital		21757.48	
5420		Net Profit from Operations		6726.54	28484.02
		Total Liabilities and Net Worth			36507.69

APPENDIX C

PREVIOUS FORM USED FOR MPYC FINANCIAL STATEMENT

Monterey Peninsula Yacht Club
Form 199 - 1971

Income			
Dues		$3,550.00	
Building Fund		5,390.00	
Initiation Fees		4,051.67	12,991.67
Interest and Miscellaneous Income		632.70	
Aid Income		6,298.03	
Racing Income		1,047.00	
Sailing School		1,367.50	
Bar Income		14,367.10	23,712.33
			36,704.00
Expenses			
Cost of Bar Sales		11,725.57	
Other Expenses			
Rent, Taxes, Utilities	3,915.44		
Interest	969.02		
Insurance	706.00		
Maintenance Service	1,589.24		
Supplies & Printing	1,522.60		
Repairs	1,543.00		
Misc. Expenses	1,748.45		
Aid Supplies	6,640.31		
Aid Service Expense	638.70		
Race Trophies	1,621.32		
Race Supplies & Equip.	475.29		
Association Dues	208.00		
Sailing Instructors	630.00		
Sailing School Gen'l Exp.	466.45		
Depreciation	2,255.38	24.929.20	36,654.77
Net Profit			49.23

Schedule of Depreciable Assets

Equipment	1,385.41
Furniture	1,018.53
Boats	272.60
Floats	2,348.84
Building	23,853.00
	28,878.38

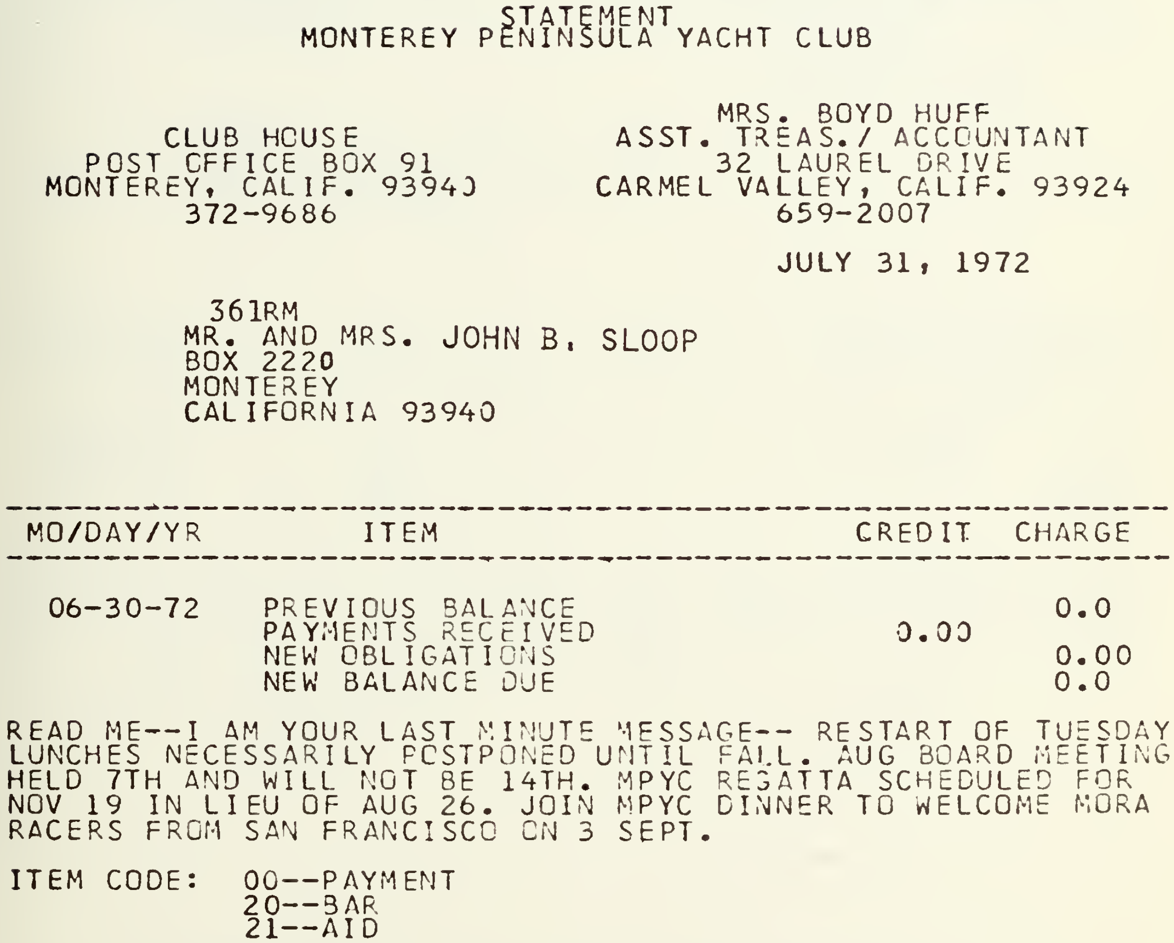
No separate reserves were set up for depreciation. Depreciation was credited directly to the asset account. Reserves are being set up in 1972.

Schedule of Notes Payable

Wells Fargo Bank	6,500.00
Rex Pressey	2,000.00
Lloyd Womble	2,000.00
	10,500.00

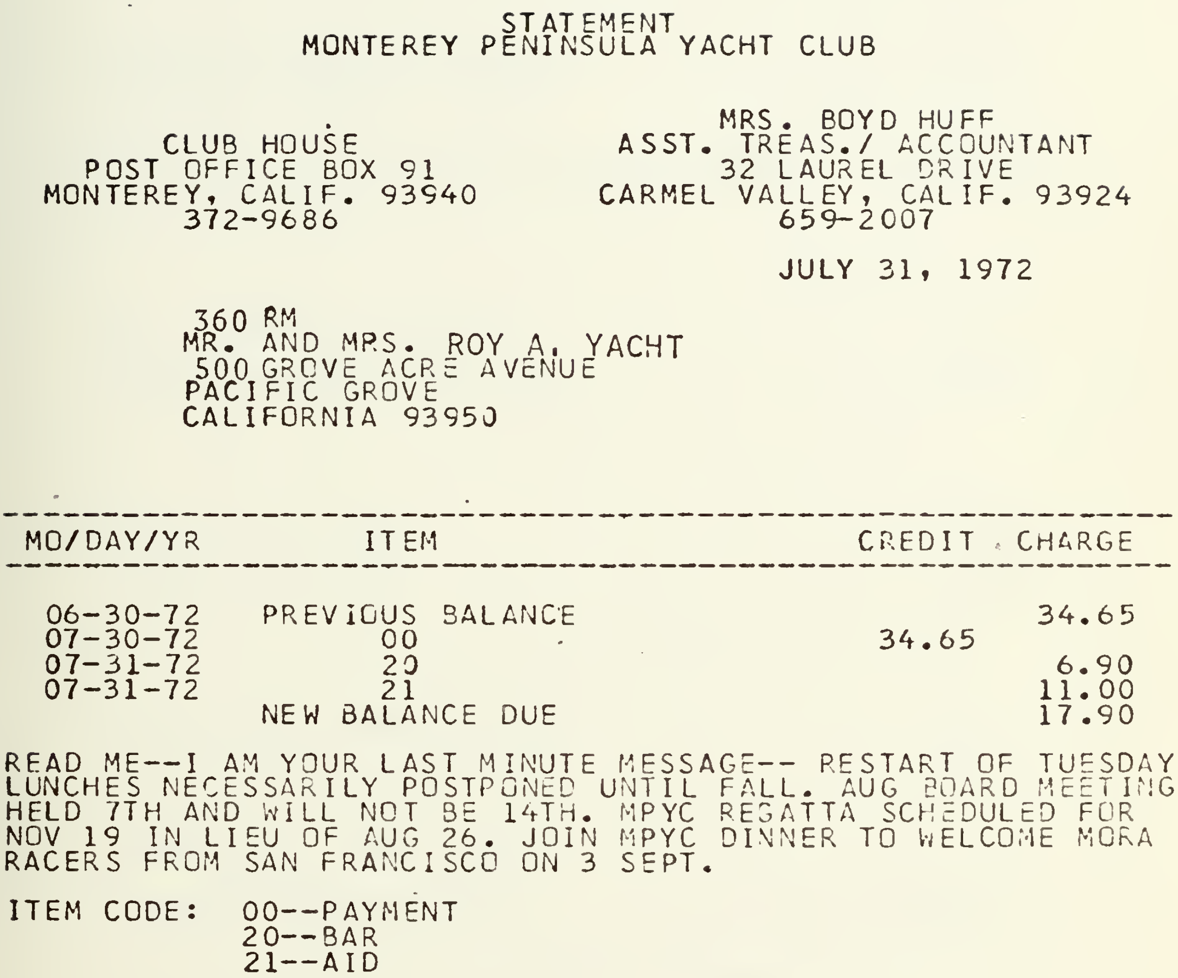
APPENDIX D

COMPUTER OUTPUT



```
                            STATEMENT
                 MONTEREY PENINSULA YACHT CLUB

                                         MRS. BOYD HUFF
         CLUB HOUSE                 ASST. TREAS./ ACCOUNTANT
     POST OFFICE BOX 91                  32 LAUREL DRIVE
 MONTEREY, CALIF. 93940            CARMEL VALLEY, CALIF. 93924
       372-9686                            659-2007

                                          JULY 31, 1972

        361RM
       MR. AND MRS. JOHN B. SLOOP
       BOX 2220
       MONTEREY
       CALIFORNIA 93940

------------------------------------------------------------------------
 MO/DAY/YR          ITEM                             CREDIT   CHARGE
------------------------------------------------------------------------

  06-30-72     PREVIOUS BALANCE                                   0.0
               PAYMENTS RECEIVED                       0.00
               NEW OBLIGATIONS                                    0.00
               NEW BALANCE DUE                                    0.0

READ ME--I AM YOUR LAST MINUTE MESSAGE-- RESTART OF TUESDAY
LUNCHES NECESSARILY POSTPONED UNTIL FALL. AUG BOARD MEETING
HELD 7TH AND WILL NOT BE 14TH. MPYC REGATTA SCHEDULED FOR
NOV 19 IN LIEU OF AUG 26. JOIN MPYC DINNER TO WELCOME MORA
RACERS FROM SAN FRANCISCO ON 3 SEPT.

ITEM CODE:   00--PAYMENT
             20--BAR
             21--AID
```

(Example bill of an account with no transactions)



```
                              STATEMENT
                   MONTEREY PENINSULA YACHT CLUB

                  .                                MRS. BOYD HUFF
            CLUB HOUSE                   ASST. TREAS./ ACCOUNTANT
        POST OFFICE BOX 91                     32 LAUREL DRIVE
     MONTEREY, CALIF. 93940             CARMEL VALLEY, CALIF. 93924
            372-9686                            659-2007

                                                JULY 31, 1972

           360 RM
           MR. AND MRS. ROY A. YACHT
            500 GROVE ACRE AVENUE
           PACIFIC GROVE
           CALIFORNIA 93950

 ------------------------------------------------------------------------
  MO/DAY/YR            ITEM                           CREDIT   CHARGE
 ------------------------------------------------------------------------

   06-30-72    PREVIOUS BALANCE                                34.65
   07-30-72           00                          34.65
   07-31-72           20                                        6.90
   07-31-72           21                                       11.00
               NEW BALANCE DUE                                 17.90

 READ ME--I AM YOUR LAST MINUTE MESSAGE-- RESTART OF TUESDAY
 LUNCHES NECESSARILY POSTPONED UNTIL FALL. AUG BOARD MEETING
 HELD 7TH AND WILL NOT BE 14TH. MPYC REGATTA SCHEDULED FOR
 NOV 19 IN LIEU OF AUG 26. JOIN MPYC DINNER TO WELCOME MORA
 RACERS FROM SAN FRANCISCO ON 3 SEPT.

 ITEM CODE:   00--PAYMENT
              20--BAR
              21--AID
```

(Example bill of an account with transactions)

ACCOUNTING DATA

PREVIOUS NO. WITH BALANCE	95
PREVIOUS BALANCE DUE	3599.33
PREVIOUS NO. WITH CREDIT	5
PREVIOUS BALANCE CREDIT	66.65
PREVIOUS ACCOUNTS RECEIVABLE BALANCE	3532.68

NO. PAYMENTS RECEIVED	42
TOTAL PAYMENTS RECEIVED	950.00

TOTAL BAR CHITS	891.70
TOTAL AID CHITS	819.40

ENDING NO. WITH BALANCE	102
ENDING BALANCE DUE	4380.53
ENDING NO. WITH CREDIT	5
ENDING BALANCE CREDIT	52.80
ENDING ACCOUNTS RECEIVABLE BALANCE	4327.73

AN ACCOUNT EXTRACTED FROM THE

MASTER AND DETAIL CARD LIST/INDIVIDUAL ACCOUNTS RECEIVABLE LEDGER

```
 118RMDR. AND MRS. ROBERT VON PAGENHARDT    19 SCARLETT ROAD                0
 118RMCARMEL VALLEY                 CALIFORNIA 93924    30   44.900         0
0118      00      44.90   07-31-72                                          1
0118      20        .75   07-04-72   2                                      1
0118      20       1.50   07-09-72   7                                      1
0118      20       3.00   07-12-72   3                                      1
0118      20       1.35   07-12-72   3                                      1
0118      20        .75   07-12-72   3                                      1
0118      20        .50   07-16-72   7                                      1
0118      20        .85   07-16-72   7                                      1
0118      20        .25   07-21-72   5                                      1
0118      20       1.70   07-21-72   5                                      1
0118      20        .25   07-22-72   6                                      1
0118      20        .65   07-22-72   6                                      1
0118      20        .25   07-26-72   3                                      1
0118      20       1.25   07-26-72   3                                      1
0118      20        .25   07-26-72   3                                      1
0118      20        .60   07-27-72   4                                      1
0118      20       4.35   07-28-72   5                                      1
0118      20       1.45   07-28-72   5                                      1
0118      20        .60   07-29-72   6                                      1
0118      20       1.00   07-29-72   6                                      1
0118      20        .25   07-29-72   6                                      1
0118      20        .85   07-30-72   7                                      1
0118      20       1.20   07-30-72   7                                      1
0118      20       4.25   07-30-72   7                                      1
0118      21       2.75   07-05-72   3   2   1   0                          1
0118      21       2.75   07-12-72   3   2   1   0                          1
0118      21       5.50   07-19-72   3   2   1   1                          1
0118      21      10.00   07-22-72   6   3   3   1                          1
0118      21       5.55   07-26-72   3   2   2   1                          1
0118      21       8.25   07-28-72   5   2   1   2                          1
0118      21       6.00   07-30-72   7   2   2   0                          1
```

```
JULY 31, 1972                         (Example)

******************************************************************

                              OVERDUE  ACCOUNTS
SIGNAL                         NAME                        OVERDUE  CURRENT
NUMBER                                                     BALANCE  BALANCE
******************************************************************


ONE MONTH OVERDUE-----  21 ACCOUNTS FOR  273.08

  12RM  MR. AND MRS. ARTHUR O. SAILS                        26.80    26.80

  26RM  DR. GEORGE M. TITANIC                                9.30    26.55
            .               .                            .
             .               .                            .
              .               .                            .

THREE MONTHS OVERDUE--  15 ACCOUNTS FOR  569.25

  42RM  MR. AND MRS. RUFF WATERS                             2.40     7.20
            .               .                            .
             .               .                            .
              .               .                            .

SIX MONTHS OVERDUE----  18 ACCOUNTS FOR 1262.25

   6RM  MR. REALY M. DELINQUENT                             80.00    80.00


TOTAL NUMBER OF OVERDUE ACCOUNTS =       65
TOTAL AMOUNT OVERDUE =                 2234.58
TOTAL AMOUNT OF CURRENT BALANCES =     2900.78
```

TABLE 1

```
JULY 31, 1972

**********************************
CHARGING TRENDS OF CLUB MEMBERSHIP
**********************************
NUMBER OF MEMBERS                     CHARGING BAR     CHARGING AID
(JUNIORS EXCLUDED)                     NO. AND %        NO. AND %
------------------                    ------------     ------------
ABSENT        =  13
HONORARY      =   5            AM+HM =   0    0.0        0    0.0
LIFE          =   1
REGULAR       = 116         LM+RM+RW =  61   51.3       45   37.8
RESIDUAL      =   2

MILITARY      =  11               MM =   7   63.6        6   54.5
INTERMEDIATE  =  16               IM =  11   68.8        6   37.5
       TOTAL  = 164            TOTAL =  79   48.2       57   34.8

TOTAL NUMBER OF MEMBERS CHARGING =  81  WHICH IS  49.4 % OF TOTAL

MEMBERSHIP AND  55.5 % OF ACTIVE (I.E., LM+RM+RW+MM+IM) MEMBERSHIP.

AVERAGE BAR CHARGE =   11.29  WITH STANDARD DEVIATION =   23.85
AVERAGE AID CHARGE =   14.38  WITH STANDARD DEVIATION =   10.12
```

TABLE 2

```
JULY 31, 1972

*************************

VOLUME OF CHARGES BY DATE

*************************

BAR INCOME                 AID INCOME                  TOTAL INCOME

DATE

  1     9.00                     0.0                       9.00
  2     0.25                     0.0                       0.25
  3     1.00                     0.0                       1.00
  4    79.20                     0.0                      79.20
  5    45.20                   117.00                    162.20
  6     1.50                     0.0                       1.50
  7     4.65                     0.0                       4.65
  8     4.65                     0.0                       4.65
  9     9.45                     0.0                       9.45
 10    14.70                     0.0                      14.70
 11     0.0                      0.0                       0.0
 12    73.05                   148.50                    221.55
 13     0.0                      0.0                       0.0
 14     0.0                      0.0                       0.0
 15     3.65                     0.0                       3.65
 16   261.95                    76.50                    338.45
 17    11.20                     0.0                      11.20
 18     8.25                     0.0                       8.25
 19    81.35                   125.10                    206.45
 20     6.75                     0.0                       6.75
 21    21.25                     0.0                      21.25
 22    20.85                    91.00                    111.85
 23     3.10                     0.0                       3.10
 24     2.95                     0.0                       2.95
 25     8.15                     0.0                       8.15
 26    73.10                   133.30                    206.40
 27    13.00                     0.0                      13.00
 28    60.05                    88.00                    148.05
 29    18.15                     0.0                      18.15
 30    55.30                    40.00                     95.30
 31     0.0                      0.0                       0.0
      -------                  -------                   -------

      891.70                   819.40                   1711.10
```

TABLE 3

```
JULY 31, 1972

**************************************************
VOLUME OF CHARGES BY DAYS OF THE WEEK (MONDAY = 1)
**************************************************
 DAY      BAR                    AID                COMBINED

  1      29.85                   0.0                  29.85

  2      95.60                   0.0                  95.60

  3     272.70                 523.90                796.60

  4      21.25                   0.0                  21.25

  5      82.95                  88.00                170.95

  6      56.30                  91.00                147.30

  7     333.05                 116.50                449.55
       --------               --------              --------
        891.70                 819.40               1711.10
```

TABLE 4

JULY 31, 1972

****

NUMBER OF PERSONS AND AMOUNTS FOR AID EVENTS

****

DATE	LUNCH NMFA	NG	TOT	AMOUNT	DINNER NMFA	NG	TOT	AMOUNT	OTHER NMFA	NG	TOT	AMOUNT
1	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
2	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
3	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
4	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
5	0	0	0	0.0	20	7	27	117.00	0	0	0	0.0
6	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
7	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
8	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
9	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
10	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
11	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
12	0	0	0	0.0	37	9	46	148.50	0	0	0	0.0
13	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
14	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
15	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
16	0	0	0	0.0	22	2	24	76.50	0	0	0	0.0
17	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
18	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
19	0	0	0	0.0	43	13	56	125.10	0	0	0	0.0
20	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
21	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
22	0	0	0	0.0	0	0	0	0.0	25	2	27	91.00
23	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
24	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
25	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
26	0	0	0	0.0	38	5	43	133.30	0	0	0	0.0
27	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
28	0	0	0	0.0	21	6	27	88.00	0	0	0	0.0
29	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
30	0	0	0	0.0	9	0	9	40.00	0	0	0	0.0
31	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
	0	0	0	0.0	190	42	232	728.40	25	2	27	91.00

APPENDIX E

CARD COLUMN DESIGNATION

MASTER CARD TYPE ONE

Columns	Information
1-4	Signal/account number
5-6	Membership type
7-44	Name
45-79	Street address
80	Master card identification code = 0

MASTER CARD TYPE TWO

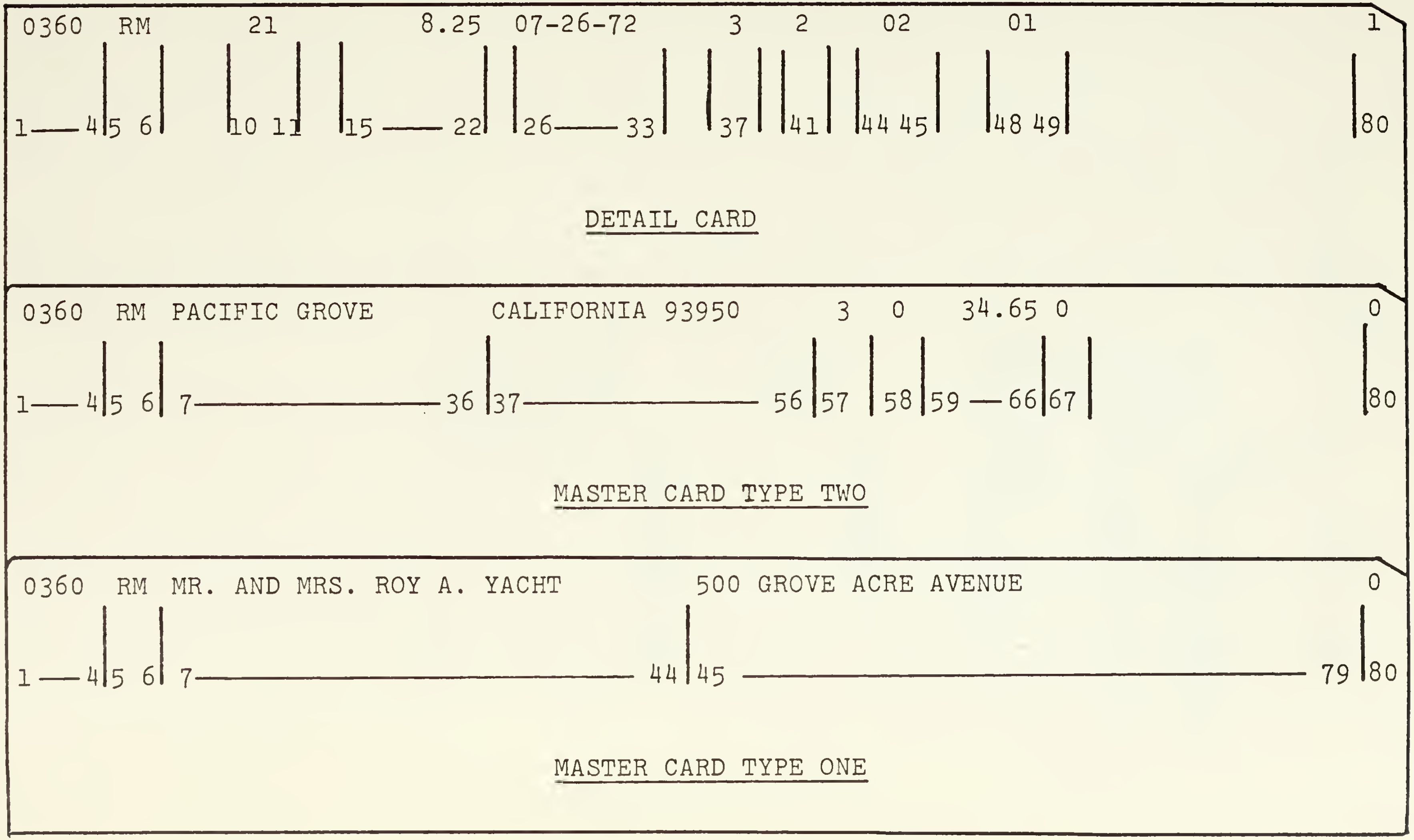
Columns	Information
1-4	Signal/account number
5-6	Membership type
7-36	City
37-56	State and zip code
57	Membership type code
58	Sailing school member code
59-66	Account balance
67	Account overdue status
80	Master card identification code = 0

DETAIL CARDS

Columns	Information
1-4	Signal/account number
5-6	Membership type
10	Transaction code
11	Transaction type code
15-22	Amount of transaction
26-33	Date of transaction eg., 07-31-72
37	Day code
41	Type of aid event code
44-45	Number in member's family
48-49	Number of guests
80	Detail card identification = 1

All of the listed columns are used for an aid charge. Columns 41-49 are not used for a bar charge. And columns 37-49 are not used for a payment on the account.

EXAMPLE CARD LAYOUTS



APPENDIX F

ITEM/TRANSACTION/EVENT CODES

CODE	ITEM
0	Master card identification
1	Detail card identification
00	Payment
10	Initiation/conversion fee
11	Building fund
12	Dues
13	Racing fee
20	Bar charge
21	Aid charge
30	Special assessment

	AID EVENTS
1	Lunch
2	Dinner
3	Other

	DAYS OF THE WEEK
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday

ALPHA CODE	NUMBER CODE	MEMBERSHIP TYPE
AM	0	Absent
HM	1	Honorary
LM	2	Life
RM	3	Regular
RW	4	Residual
MM	5	Military
IM	6	Intermediate
JM	7	Junior

OVERDUE ACCOUNTS

CODE	
0	Not overdue i.e., current
1	One month overdue
⋮	⋮
5	Five months overdue
6	Six or more months overdue

APPENDIX G

COMPUTER PROGRAM
FOR
MONTEREY PENINSULA YACHT CLUB
DATA COLLECTION / BILLING SYSTEM

```
      DIMENSION ANAME(10), STREET(9), CITY(8), STATE(5),
     1DATEH(5), BUFFER(19), ADTD(2), DATEC(2)
      DIMENSION IODUE1(75), AODUE1(75), ODNA1(75,10),
     1ODBA1(75), CUBA1(75), IODUE2(50), AODUE2(50),
     2ODNA2(50,10), ODBA2(50), CUBA2(50), IODUE3(30),
     3AODUE3(30), ODNA3(30,10), ODBA3(30), CUBA3(30),
     4IODUE4(20), AODUE4(20), ODNA4(20,10), ODBA4(20),
     5CUBA4(20), IODUE5(20), AODUE5(20), ODNA5(20,10)
      DIMENSION ODBA5(20), CUBA5(20), IODUE6(20), AODUE6(20)
     1, ODNA6(20,10), ODBA6(20), CUBA6(20)
      DIMENSION BCHDT(31), BCHDA(7), ACHDT(31), ACHDA(7),
     1BACDT(31), BACDA(7), NMFAL(31), NGL(31), NMFAD(31),
     2NGD(31), NMFAO(31), NGO(31), ACLDT(31), ACDDT(31),
     3ACODT(31), NTOTL(31), NTOTD(31), NTOTO(31)
      DATA DATEH/'JULY',' 31,',' 197','2   ','    '/
      DATA ITEST/0/, KTEST/0/, LTEST/0/, MTEST/0/, IEND/0/,
     1IPAGE/2/, DATEC/'07-3','1-72'/
      DATA TODUE1/0.0/, TODUE2/0.0/, TODUE3/0.0/,
     1TODUE4/0.0/, TODUE5/0.0/, TODUE6/0.0/, TCUBAL/0.0/
      DATA SUBBAR/0.0/, SUBAID/0.0/, PRBACR/0.0/,
     1PRBADU/0.0/, EBALCR/0.0/, EBALDU/0.0/, PAYREC/0.0/,
     2BARSUM/0.0/, AIDSUM/0.0/, NWPBAL/0/, NWPCR/0/,
     3NWEBAL/0/, NWECR/0/, NPAYRC/0/
      DATA L/0/, LL/0/, LLL/0/, LLLL/0/, LLLLL/0/, LLLLLL/0/
      DATA BCHDT/31*0.0/, BCHDA/7*0.0/, ACHDT/31*0.0/,
     1ACHDA/7*0.0/, BACDT/31*0.0/, BACDA/7*0.0/, NMFAL/31*0/
     2,NGL/31*0/, NMFAD/31*0/, NGD/31*0/, NMFAO/31*0/,
     3NGO/31*0/, ACLDT/31*0.0/, ACDDT/31*0.0/, ACODT/31*0.0/
     4,NTOTL/31*0/, NTOTD/31*0/, NTOTO/31*0/
      DATA NAMTOT/0/, NHMTOT/0/, NLMTOT/0/, NRMTOT/0/,
     1NRWTOT/0/, NMMTOT/0/, NIMTOT/0/
      DATA NAHCB/0/, NLRRCB/0/, NMCB/0/, NICB/0/, NAHCA/0/,
     1NLRRCA/0/, NMCA/0/, NICA/0/, NMFALT/0/, NGLT/0/,
     2NMFADT/0/, NGDT/0/, NMFAOT/0/, NGOT/0/, NTOTLM/0/,
     3NTOTDM/0/, NTOTOM/0/, IFLAG/0/, IAFLAG/0/, IBFLAG/0/,
     4NCTOT/0/
      DATA TBCHDT/0.0/, TACHDT/0.0/, TBACDT/0.0/, TACL/0.0/,
     1TACD/0.0/, TACO/0.0/, TBCHDA/0.0/, TACHDA/0.0/,
     2TBACDA/0.0/
************************************************************
C
C     SECTION FOR INITIAL READING OF ALL TYPE-ONE MASTER
C     CARDS AND ALL DETAIL CARDS -- ALSO CHECKS FOR A NORMAL
C     PROGRAM EXIT
C
************************************************************
      CALL REREAD
   10 READ (5,999,END=1000) ISIG, BUFFER, ID
      IF (ID.EQ.1) GO TO 90
************************************************************
C
C     SECTION FOR MASTER CARD PROCESSING -- ALSO CHECKS FOR
C     ABNORMAL PROGRAM EXIT (EXIT 2) AND READS ALL TYPE-TWO
C     MASTER CARDS
C
************************************************************
      IF (KTEST.EQ.1) GO TO 170
      IF (ITEST.EQ.0) GO TO 50
```

```
************************************************************
C
C      SECTION FOR PROCESSING BILLS OF ACCOUNTS THAT HAVE NO
C      TRANSACTIONS -- ALSO PROCESSES OVER DUE ACCOUNTS AND
C      PUNCHES NEW MASTER CARDS ***** MASTER CARD PROCESSING
C      CONTINUES WITH STATEMENT NUMBER 50
C
************************************************************
   20 IF (LTEST.EQ.1) GO TO 30
      IF (BAL.GT.0.0) ISTAT = ISTAT + 1
   30 IF (MTEST.EQ.1) GO TO 40
      IF (IPAGE.EQ.2) GO TO 31
      WRITE (6,910) DATEH, ISIGM, ASIGM, ANAME, STREET,
     1CITY, STATE
      GO TO 32
   31 IPAGE = 0
      WRITE (6,909) DATEH, ISIGM, ASIGM, ANAME, STREET,
     1CITY, STATE
   32 IF (BAL.LT.0.0) GO TO 35
      WRITE (6,911) BAL
      WRITE (6,912) BAL
      GO TO 36
   35 BAL = - BAL
      WRITE (6,965) BAL
      WRITE (6,913) BAL
      BAL = - BAL
   36 WRITE (6,914)
      WRITE (6,915)
      ODBAL = BAL
      IPAGE = IPAGE + 1
   40 IF (ISTAT.NE.0) GO TO 400
      GO TO 42
  400 IF (ISTAT-3) 405, 425, 435
  405 IF (ISTAT.EQ.2) GO TO 415
      L = L + 1
      IODUE1(L) = ISIGM
      AODUE1(L) = ASIGM
      DO 410 J=1,10
      ODNA1(L,J) = ANAME(J)
  410 CONTINUE
      ODBA1(L) = ODBAL
      CUBA1(L) = BAL
      TODUE1 = TODUE1 + ODBAL
      TCUBAL = TCUBAL + BAL
      GO TO 42
  415 LL = LL + 1
      IODUE2(LL) = ISIGM
      AODUE2(LL) = ASIGM
      DO 420 J=1,10
      ODNA2(LL,J) = ANAME(J)
  420 CONTINUE
      ODBA2(LL) = ODBAL
      CUBA2(LL) = BAL
      TODUE2 = TODUE2 + ODBAL
      TCUBAL = TCUBAL + BAL
      GO TO 42
  425 LLL = LLL + 1
      IODUE3(LLL) = ISIGM
      AODUE3(LLL) = ASIGM
      DO 430 J=1,10
      ODNA3(LLL,J) = ANAME(J)
  430 CONTINUE
      ODBA3(LLL) = ODBAL
      CUBA3(LLL) = BAL
      TODUE3 = TODUE3 + ODBAL
      TCUBAL = TCUBAL + BAL
      GO TO 42
  435 IF (ISTAT-5) 440, 450, 460
  440 LLLL = LLLL + 1
      IODUE4(LLLL) = ISIGM
      AODUE4(LLLL) = ASIGM
      DO 445 J=1,10
```

```
      ODNA4(LLLL,J) = ANAME(J)
  445 CONTINUE
      ODBA4(LLLL) = ODBAL
      CUBA4(LLLL) = BAL
      TODUE4 = TODUE4 + ODBAL
      TCUBAL = TCUBAL + BAL
      GO TO 42
  450 LLLLL = LLLLL + 1
      IODUE5(LLLLL) = ISIGM
      AODUE5(LLLLL) = ASIGM
      DO 455 J=1,10
      ODNA5(LLLLL,J) = ANAME(J)
  455 CONTINUE
      ODBA5(LLLLL) = ODBAL
      CUBA5(LLLLL) = BAL
      TODUE5 = TODUE5 + ODBAL
      TCUBAL = TCUBAL + BAL
      GO TO 42
  460 LLLLLL = LLLLLL + 1
      IODUE6(LLLLLL) = ISIGM
      AODUE6(LLLLLL) = ASIGM
      DO 465 J=1,10
      ODNA6(LLLLLL,J) = ANAME(J)
  465 CONTINUE
      ODBA6(LLLLLL) = ODBAL
      CUBA6(LLLLLL) = BAL
      TODUE6 = TODUE6 + ODBAL
      TCUBAL = TCUBAL + BAL
   42 IF (BAL.LT.0.0) GO TO 44
      EBALDU = EBALDU + BAL
      IF (BAL.GT.0.0) NWEBAL = NWEBAL + 1
      GO TO 45
   44 EBALCR = EBALCR - BAL
      NWECR = NWECR + 1
   45 WRITE (7,901) ISIGM, ASIGM, ANAME, STREET, IDM1
      WRITE (7,902) ICHECK, ACHECK, CITY, STATE, ICLASS,
     1ISS, BAL, ISTAT, IDM2
      IF (IEND.EQ.1) GO TO 1001
      ITEST = 0
      LTEST = 0
      MTEST = 0
************************************************************
C
C     END OF SECTION FOR PROCESSING BILLS OF ACCOUNTS THAT
C     HAVE NO TRANSACTIONS -- OVERDUE ACCOUNTS -- PUNCHES
C     NEW MASTER CARDS ***** CONTINUATION OF SECTION FOR
C     MASTER CARD PROCESSING
C
************************************************************
   50 READ (99,901) ISIGM, ASIGM, ANAME, STREET, IDM1
      READ (5,902,END=1005) ICHECK, ACHECK, CITY, STATE,
     1ICLASS, ISS, BAL, ISTAT, IDM2
      IF (ISIGM.EQ.ICHECK) GO TO 60
      GO TO 80
   60 IF (IDM1.EQ.IDM2) GO TO 70
      GO TO 80
   70 IDEXIT = IDM2
      ITEST = 1
      IF (ICLASS-3) 500, 510, 502
  500 IF (ICLASS-1) 504, 506, 508
  502 IF (ICLASS-5) 512, 514, 516
  504 NAMTOT = NAMTOT + 1
      GO TO 73
  506 NHMTOT = NHMTOT + 1
      GO TO 73
  508 NLMTOT = NLMTOT + 1
      GO TO 73
  510 NRMTOT = NRMTOT + 1
      GO TO 73
  512 NRWTOT = NRWTOT + 1
      GO TO 73
  514 NMMTOT = NMMTOT + 1
```

```
      GO TO 73
  516 NIMTOT = NIMTOT + 1
   73 IF (BAL.LT.0.0) GO TO 74
      PRBADU = PRBADU + BAL
      IF (BAL.GT.0.0) NWPBAL = NWPBAL + 1
      GO TO 75
   74 PRBACR = PRBACR - BAL
      NWPCR = NWPCR + 1
   75 GO TO 10
   80 WRITE (6,920) ISIGM, ANAME, ICHECK
      GO TO 10
************************************************************
C
C     SECTION FOR DETAIL CARD PROCESSING
C
************************************************************
   90 IDEXIT = ID
      READ (99,900) ISIGD, ASIGD, ITRAND, ITYPED, AMTD,
     1ADTD, ID
      IF (ISIGM.EQ.ISIGD) GO TO 300
      WRITE (6,921) ISIGM, ANAME, ISIGD
      ITEST = 0
      GO TO 10
  300 IF (ITRAND.NE.2) GO TO 100
      IF (IFLAG.EQ.0) NCTOT = NCTOT + 1
      IFLAG = 1
      IF (ITYPED.EQ.1) GO TO 305
************************************************************
C
C     SUBSECTION FOR BAR CHARGES
C
************************************************************
      BARSUM = BARSUM + AMTD
      SUBBAR = SUBBAR + AMTD
      READ (99,5000) IDATE, IDAY
      BCHDT (IDATE) = BCHDT (IDATE) + AMTD
      BCHDA (IDAY) = BCHDA (IDAY) + AMTD
      IF (IBFLAG.EQ.0) GO TO 518
      GO TO 100
  518 IF (ICLASS-3) 520, 526, 522
  520 IF (ICLASS-1) 524, 524, 526
  522 IF (ICLASS-5) 526, 528, 530
  524 NAHCB = NAHCB + 1
      IBFLAG = 1
      GO TO 100
  526 NLRRCB = NLRRCB + 1
      IBFLAG = 1
      GO TO 100
  528 NMCB = NMCB + 1
      IBFLAG = 1
      GO TO 100
  530 NICB = NICB + 1
      IBFLAG = 1
      GO TO 100
************************************************************
C
C     SUBSECTION FOR AID CHARGES
C
************************************************************
  305 AIDSUM = AIDSUM + AMTD
      SUBAID = SUBAID + AMTD
      READ (99,5020) IDATE, IDAY, IMEAL, NMFA, NGUEST
      IF (IMEAL-2) 532, 534, 536
  532 ACLDT (IDATE) = ACLDT (IDATE) + AMTD
      NMFAL (IDATE) = NMFAL (IDATE) + NMFA
      NGL (IDATE) = NGL (IDATE) + NGUEST
      GO TO 538
  534 ACDDT (IDATE) = ACDDT (IDATE) + AMTD
      NMFAD (IDATE) = NMFAD (IDATE) + NMFA
      NGD (IDATE) = NGD (IDATE) + NGUEST
      GO TO 538
  536 ACODT (IDATE) = ACODT (IDATE) + AMTD
```

```
      NMFAO (IDATE) = NMFAO (IDATE) + NMFA
      NGO (IDATE) = NGO (IDATE) + NGUEST
  538 ACHDT (IDATE) = ACHDT (IDATE) + AMTD
      ACHDA (IDAY) = ACHDA (IDAY) + AMTD
      IF (IAFLAG.EQ.0) GO TC 540
      GO TO 100
  540 IF (ICLASS-3) 542, 548, 544
  542 IF (ICLASS-1) 546, 546, 548
  544 IF (ICLASS-5) 548, 550, 552
  546 NAHCA = NAHCA + 1
      IAFLAG = 1
      GO TO 100
  548 NLRRCA = NLRRCA + 1
      IAFLAG = 1
      GO TO 100
  550 NMCA = NMCA + 1
      IAFLAG = 1
      GO TO 100
  552 NICA = NICA + 1
      IAFLAG = 1
***************************************************************
C
C     SECTION FOR PROCESSING (INITIAL) BILLS OF ACCOUNTS
C     THAT HAVE TRANSACTIONS -- ALSO PROCESSES LIMITED
C     OCCURRENCE CHARGES
C
***************************************************************
  100 IF (KTEST.EQ.1) GO TO 110
      KTEST = 1
      IF (IPAGE.EQ.2) GO TO 101
      WRITE (6,910) DATEH, ISIGM, ASIGM, ANAME, STREET,
     1CITY, STATE
      GO TO 102
  101 IPAGE = 0
      WRITE (6,909) DATEH, ISIGM, ASIGM, ANAME, STREET,
     1CITY, STATE
  102 IF (BAL.LT.0.0) GO TO 105
      WRITE (6,911) BAL
      GO TO 110
  105 BAL = - BAL
      WRITE (6,965) BAL
      BAL = - BAL
  110 IF (ITRAND.EQ.0) GO TO 130
      IF (LTEST.EQ.1) GO TO 120
      ODBAL = BAL
      IF (BAL.GT.0.0) ISTAT = ISTAT + 1
  120 BAL = BAL + AMTD
      LTEST = 1
      IF (ITRAND.EQ.3) WRITE (6,935) ADTD, AMTD
  935 FORMAT (3X,2A4,9X,'CHAIRS',24X,F8.2)
      GO TO 10
***************************************************************
C
C     SECTION FOR PROCESSING PAYMENTS
C
***************************************************************
  130 PAYREC = PAYREC + AMTD
      NPAYRC = NPAYRC + 1
      IF (AMTD.GE.BAL) GO TO 140
      IF (LTEST.EQ.1) GO TO 150
      ISTAT = ISTAT + 1
      ODBAL = BAL - AMTD
      GO TO 150
  140 ISTAT = 0
  150 BAL = BAL - AMTD
      LTEST = 1
      WRITE (6,930) ADTD, ITRAND, ITYPED, AMTD
      GO TO 10
```

```
*****************************************************************
C
C      SECTION FOR PROCESSING (FINAL) BILLS OF ACCOUNTS THAT
C      HAVE TRANSACTIONS
C
*****************************************************************
  170 WRITE (6,940) DATEC, SUBBAR
      IF (SUBBAR.EQ.0.0) GO TO 175
      BSQ = SUBBAR * SUBBAR
      SUMBSQ = SUMBSQ + BSQ
      SUBBAR = 0.0
  175 WRITE (6,945) DATEC, SUBAID
      IF (SUBAID.EQ.0.0) GO TO 176
      ASQ = SUBAID * SUBAID
      SUMASQ = SUMASQ + ASQ
      SUBAID = 0.0
  176 IF (BAL.LT.0.0) GO TO 180
      WRITE (6,950) BAL
      GO TO 190
  180 BAL = - BAL
      WRITE (6,960) BAL
      BAL = - BAL
  190 WRITE (6,914)
      WRITE (6,915)
      IPAGE = IPAGE + 1
      IFLAG = 0
      IAFLAG = 0
      IBFLAG = 0
      MTEST = 1
      KTEST = 0
      GO TO 20
*****************************************************************
C
C      END OPTION OF STATEMENT NUMBER 10 -- SETS FLAG FOR
C      NORMAL EXIT
C
*****************************************************************
 1000 IEND = 1
      IF (IDEXIT.EQ.0) GO TO 20
      GO TO 170
*****************************************************************
C
C      NORMAL EXIT -- SECTION FOR FINAL STATISTICS, OUTPUT
C      SUMMARIES, AND TABLES
C
*****************************************************************
 1001 PRBADU = PRBADU + .005
      EBALDU = EBALDU + .005
      PARBAL = PRBADU - PRBACR
      EARBAL = EBALDU - EBALCR
      NODTOT = L + LL + LLL + LLLL + LLLLL + LLLLLL
      TODSUM = TODUE1 + TODUE2 + TODUE3 + TODUE4 + TODUE5 +
     1TODUE6
      MEMTOT = NAMTOT + NHMTOT + NLMTOT + NRMTOT + NRWTOT +
     1NMMTOT + NIMTOT
      NCBTOT = NAHCB + NLRRCB + NMCB + NICB
      FNCB = NCBTOT
      NCATOT = NAHCA + NLRRCA + NMCA + NICA
      FNCA = NCATOT
      FAH = NAMTOT + NHMTOT
      PAHCB = 100.0*(FLOAT(NAHCB)/FAH)
      PAHCA = 100.0*(FLOAT(NAHCA)/FAH)
      FLRR = NLMTOT + NRMTOT + NRWTOT
      PLRRCB = 100.0*(FLOAT(NLRRCB)/FLRR)
      PLRRCA = 100.0*(FLOAT(NLRRCA)/FLRR)
      FM = NMMTOT
      PMCB = 100.0*(FLOAT(NMCB)/FM)
      PMCA = 100.0*(FLOAT(NMCA)/FM)
      FI = NIMTOT
      PICB = 100.0*(FLOAT(NICB)/FI)
      PICA = 100.0*(FLOAT(NICA)/FI)
      FMEM = MEMTOT
```

```
    PCB = 100.0*(FNCB/FMEM)
    PCA = 100.0*(FNCA/FMEM)
    FNCTOT = NCTOT
    PTOTMC = 100.0*(FNCTOT/FMEM)
    AMEM = NLMTOT + NRMTOT + NRWTOT + NMMTOT + NIMTOT
    PAMC = 100.0*(FNCTOT/AMEM)
    DO 554 I=1,31
    NTOTL(I) = NMFAL(I) + NGL(I)
    NTOTD(I) = NMFAD(I) + NGD(I)
    NTOTO(I) = NMFAO(I) + NGO(I)
    BACDT(I) = BCHDT(I) + ACHDT(I)
    TBCHDT = TBCHDT + BCHDT(I)
    TACHDT = TACHDT + ACHDT(I)
    TBACDT = TBACDT + BACDT(I)
    NMFALT = NMFALT + NMFAL(I)
    NGLT = NGLT + NGL(I)
    NTOTLM = NTOTLM + NTOTL(I)
    NMFADT = NMFADT + NMFAD(I)
    NGDT = NGDT + NGD(I)
    NTOTDM = NTCTDM + NTOTD(I)
    NMFAOT = NMFAOT + NMFAO(I)
    NGOT = NGOT + NGO(I)
    NTOTOM = NTOTOM + NTOTO(I)
    TACL = TACL + ACLDT(I)
    TACD = TACD + ACDDT(I)
    TACO = TACO + ACODT(I)
554 CONTINUE
    BSUMSQ = TBCHDT * TBCHDT
    BAVG = TBCHDT / FNCB
    BVAR = (SUMBSQ-(BSUMSQ/FNCB))/(FNCB-1.0)
    BSTDEV = SQRT (BVAR)
    ASUMSQ = TACHDT * TACHDT
    AAVG = TACHDT / FNCA
    AVAR = (SUMASQ-(ASUMSQ/FNCA))/(FNCA-1.0)
    ASTDEV = SQRT (AVAR)
    DO 556 I=1,7
    BACDA(I) = BCHDA(I) + ACHDA(I)
    TBCHDA = TBCHDA + BCHDA(I)
    TACHDA = TACHDA + ACHDA(I)
    TBACDA = TBACDA + BACDA(I)
556 CONTINUE
    WRITE (6,3000) NWPBAL, PRBADU, NWPCR, PRBACR, PARBAL
    WRITE (6,3100) NPAYRC, PAYREC
    WRITE (6,3200) BARSUM, AIDSUM
    WRITE (6,3300) NWEBAL, EBALDU, NWECR, EBALCR, EARBAL
    WRITE (6,4000) DATEH
    WRITE (6,4050)
    IF (L.EQ.0) GO TO 471
    WRITE (6,4100) L, TODUE1
    DO 470 I=1,L
    WRITE (6,4150) IODUE1(I), AODUE1(I),
   1(ODNA1(I,J),J=1,10), ODBA1(I), CUBA1(I)
470 CONTINUE
471 IF (LL.EQ.0) GO TO 473
    WRITE (6,4200) LL, TODUE2
    DO 472 I=1,LL
    WRITE (6,4150) IODUE2(I), AODUE2(I),
   1(ODNA2(I,J),J=1,10), ODBA2(I), CUBA2(I)
472 CONTINUE
473 IF (LLL.EQ.0) GO TO 475
    WRITE (6,4300) LLL, TODUE3
    DO 474 I=1,LLL
    WRITE (6,4150) IODUE3(I), AODUE3(I),
   1(ODNA3(I,J),J=1,10), ODBA3(I), CUBA3(I)
474 CONTINUE
475 IF (LLLL.EQ.0) GO TO 477
    WRITE (6,4400) LLLL, TODUE4
    DO 476 I=1,LLLL
    WRITE (6,4150) IODUE4(I), AODUE4(I),
   1(ODNA4(I,J),J=1,10), ODBA4(I), CUBA4(I)
476 CONTINUE
477 IF (LLLLL.EQ.0) GO TO 479
```

```
      WRITE (6,4500) LLLLL, TODUE5
      DO 478 I=1,LLLLL
      WRITE (6,4150) IODUE5(I), AODUE5(I),
     1(ODNA5(I,J),J=1,10), ODBA5(I), CUBA5(I)
  478 CONTINUE
  479 IF (LLLLLL.EQ.0) GO TO 481
      WRITE (6,4600) LLLLLL, TODUE6
      DO 480 I=1,LLLLLL
      WRITE (6,4150) IODUE6(I), AODUE6(I),
     1(ODNA6(I,J),J=1,10), ODBA6(I), CUBA6(I)
  480 CONTINUE
  481 WRITE (6,4700) NODTOT, TODSUM, TCUBAL
      WRITE (6,4000) DATEH
      WRITE (6,5040)
      WRITE (6,5045) NAMTOT, NAHCB, PAHCB, NAHCA, PAHCA,
     1NHMTOT, NLMTOT, NRMTOT, NLRRCB, PLRRCB, NLRRCA,
     2PLRRCA, NRWTOT
      WRITE(6,5050) NMMTOT, NMCB, PMCB, NMCA, PMCA, NIMTOT,
     1NICB, PICB, NICA, PICA, MEMTOT, NCBTOT, PCB, NCATOT,
     2PCA, NCTOT, PTOTMC
      WRITE (6,5055) PAMC, BAVG, BSTDEV, AAVG, ASTDEV
      WRITE (6,4000) DATEH
      WRITE (6,5060)
      DO 560 I=1,31
      WRITE (6,5065) I, BCHDT(I), ACHDT(I), BACDT(I)
  560 CONTINUE
      WRITE (6,5070) TBCHDT, TACHDT, TBACDT
      WRITE (6,4000) DATEH
      WRITE (6,5075)
      DO 580 I=1,7
      WRITE (6,5080) I, BCHDA(I), ACHDA(I), BACDA(I)
  580 CONTINUE
      WRITE (6,5085) TBCHDA, TACHDA, TBACDA
      WRITE (6,4000) DATEH
      WRITE (6,5100)
      WRITE (6,5105)
      DO 590 I=1,31
      WRITE (6,5110) I, NMFAL(I), NGL(I), NTOTL(I), ACLDT(I)
     1,NMFAD(I), NGD(I), NTOTD(I), ACDDT(I), NMFAO(I),
     2NGO(I), NTOTO(I), ACODT(I)
  590 CONTINUE
      WRITE (6,5115) NMFALT, NGLT, NTOTLM, TACL, NMFADT,
     1NGDT, NTOTDM, TACD, NMFAOT, NGOT, NTOTOM, TACO
      STOP
************************************************************
C
C     ABNORMAL EXIT
C
************************************************************
 1005 WRITE (6,1006)
      STOP
************************************************************
C
C     LISTING OF INPUT AND OUTPUT FORMATS
C
************************************************************
  900 FORMAT (I4,A2,3X,I1,I1,3X,F8.2,3X,2A4,46X,I1)
  901 FORMAT (I4,A2,9A4,A2,8A4,A3,I1)
  902 FORMAT (I4,A2,7A4,A2,5A4,I1,I1,F8.2,I1,12X,I1)
  909 FORMAT ('1',25X,'STATEMENT',/,16X,'MONTEREY PENINSULA
      YACHT CLUB',
     1///,37X,'MRS. BOYD HUFF',/,9X,'CLUB HOUSE',13X,'ASST.
      TREAS./ ACCO
     2UNTANT',/,5X,'POST OFFICE BOX 91',14X,'32 LAUREL DRIVE
      ',/,3X,'MONT
     3EREY, CALIF. 93940',6X,'CARMEL VALLEY, CALIF. 93924',/
      ,10X,'372-96
     486',22X,'659-2007',//,40X,4A4,A2,//,10X,I4,A2,/,10X,9A
      4,A2,/,10X,
     58A4,A2,/,10X,7A4,A2,/,10X,5A4,///)
  910 FORMAT (26X,'STATEMENT',/,16X,'MONTEREY PENINSULA YACH
      T CLUB',///,
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     137X,'MRS. BOYD HUFF',/,9X,'CLUB HOUSE',13X,'ASST. TREA
      S./ ACCOUNTA
     2NT',/,5X,'POST OFFICE BOX 91',14X,'32 LAUREL DRIVE',/,
      3X,'MONTEREY
     3, CALIF. 93940',6X,'CARMEL VALLEY, CALIF. 93924',/,10X
      ,'372-9686',
     422X,'659-2007',//,40X,4A4,A2,//,10X,I4,A2,/,10X,9A4,A2
      ,/,10X,
     58A4,A2,/,10X,7A4,A2,/,10X,5A4,///)
 911  FORMAT (1X,'-----------------------------------------
      ------------
     1-----',/,2X,'MO/DAY/YR',8X,'ITEM',21X,'CREDIT  CHARGE'
      ,/,1X,'-----
     2-----------------------------------------------------
      ',//,3X,'06-
     330-72',3X,'PREVIOUS BALANCE',20X,F8.2)
 912  FORMAT (14X,'PAYMENTS RECEIVED',11X,'    0.00',/,14X,'
      NEW OBLIGATI
     1ONS',21X,'    0.00',/,14X,'NEW BALANCE DUE',21X,F8.2,/
      )
 913  FORMAT (14X,'PAYMENTS RECEIVED',11X,'    0.00',/,14X,'
      NEW OBLIGATI
     1ONS',21X,'    0.00',/,14X,'NEW BALANCE IS CREDIT',7X,F
      8.2,/)
 914  FORMAT (1X,'READ ME--I AM YOUR LAST MINUTE MESSAGE-- R
      ESTART OF TU
     1ESDAY',/,1X,'LUNCHES NECESSARILY POSTPONED UNTIL FALL.
       AUG BOARD M
     2EETING',/,1X,'HELD 7TH AND WILL NOT BE 14TH. MPYC REGA
      TTA SCHEDULE
     3D FOR  ',/,1X,'NOV 19 IN LIEU OF AUG 26. JOIN MPYC DIN
      NER TO WELCO
     4ME MORA ',/,1X,'RACERS FROM SAN FRANCISCO ON 3 SEPT.',
      /)
 915  FORMAT (1X,'ITEM CODE:  00--PAYMENT',/,13X,'20--BAR',/
      ,13X,
     1'21--AID',///)
 920  FORMAT ('1','MASTER CARDS DO NOT MATCH - ERROR 1',/,1X
      ,I4,2X,
     19A4,A2,2X,I4)
 921  FORMAT (1X,'MASTER AND DETAIL CARDS DO NOT MATCH - ERR
      OR 2',/,
     11X,I4,2X,9A4,A2,2X,I4)
 930  FORMAT (3X,2A4,9X,I1,I1,20X,F8.2)
 940  FORMAT (3X,2A4,9X,'20',28X,F8.2)
 945  FORMAT (3X,2A4,9X,'21',28X,F8.2)
 950  FORMAT (14X,'NEW BALANCE DUE',21X,F8.2,/)
 960  FORMAT (14X,'NEW BALANCE IS CREDIT',7X,F8.2,/)
 965  FORMAT (1X,'-----------------------------------------
      ------------
     1-----',/,2X,'MO/DAY/YR',8X,'ITEM',21X,'CREDIT  CHARGE'
      ,/,1X,'-----
     2-----------------------------------------------------
      ',//,3X,'06-
     330-72',3X,'PREVIOUS BALANCE',12X,F8.2)
 999  FORMAT (I4,18A4,A3,I1)
1006  FORMAT (6X,'ERROR--PROGRAM SHOULD NEVER END HERE--',
     1//,6X,'2ND READ STATEMENT AT STATEMENT NO. 50 TRIED',
     2'TO READ A DATA CARD',//,6X,'BUT NONE WERE THERE')
3000  FORMAT ('1','PREVIOUS NO. WITH BALANCE',I4,//,1X,
     1'PREVIOUS BALANCE DUE',F8.2,//,1X,'PREVIOUS NO. WITH '
     2'CREDIT',I4,//,1X,'PREVIOUS BALANCE CREDIT',F8.2,
     3//,1X,'PREVIOUS ACCOUNTS RECEIVABLE BALANCE',F8.2,//)
3100  FORMAT ('0','NO. PAYMENTS RECEIVED',I4,//,1X,'TOTAL '
     1'PAYMENTS RECEIVED',F8.2,//)
3200  FORMAT ('0','TOTAL BAR CHITS',F8.2,//,1X,'TOTAL AID '
     1'CHITS',F8.2,//)
3300  FORMAT ('0','ENDING NO. WITH BALANCE',I4,//,1X,
     1'ENDING BALANCE DUE',F8.2,//,1X,'ENDING NO. WITH '
     2'CREDIT',I4,//,1X,'ENDING BALANCE CREDIT',F8.2,//,1X,
     3'ENDING ACCOUNTS RECEIVABLE BALANCE',F8.2)
4000  FORMAT ('1',5X,5A4)
```
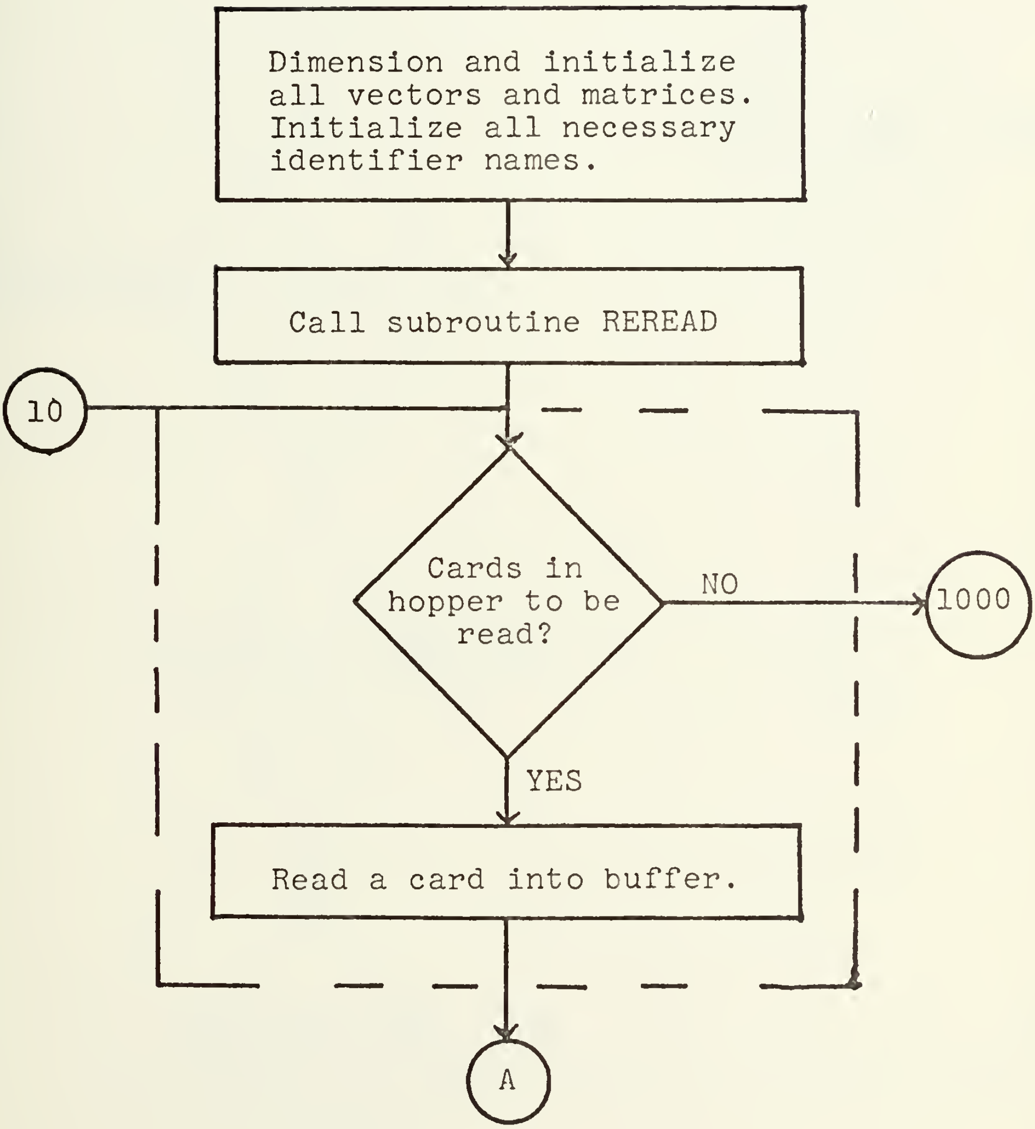
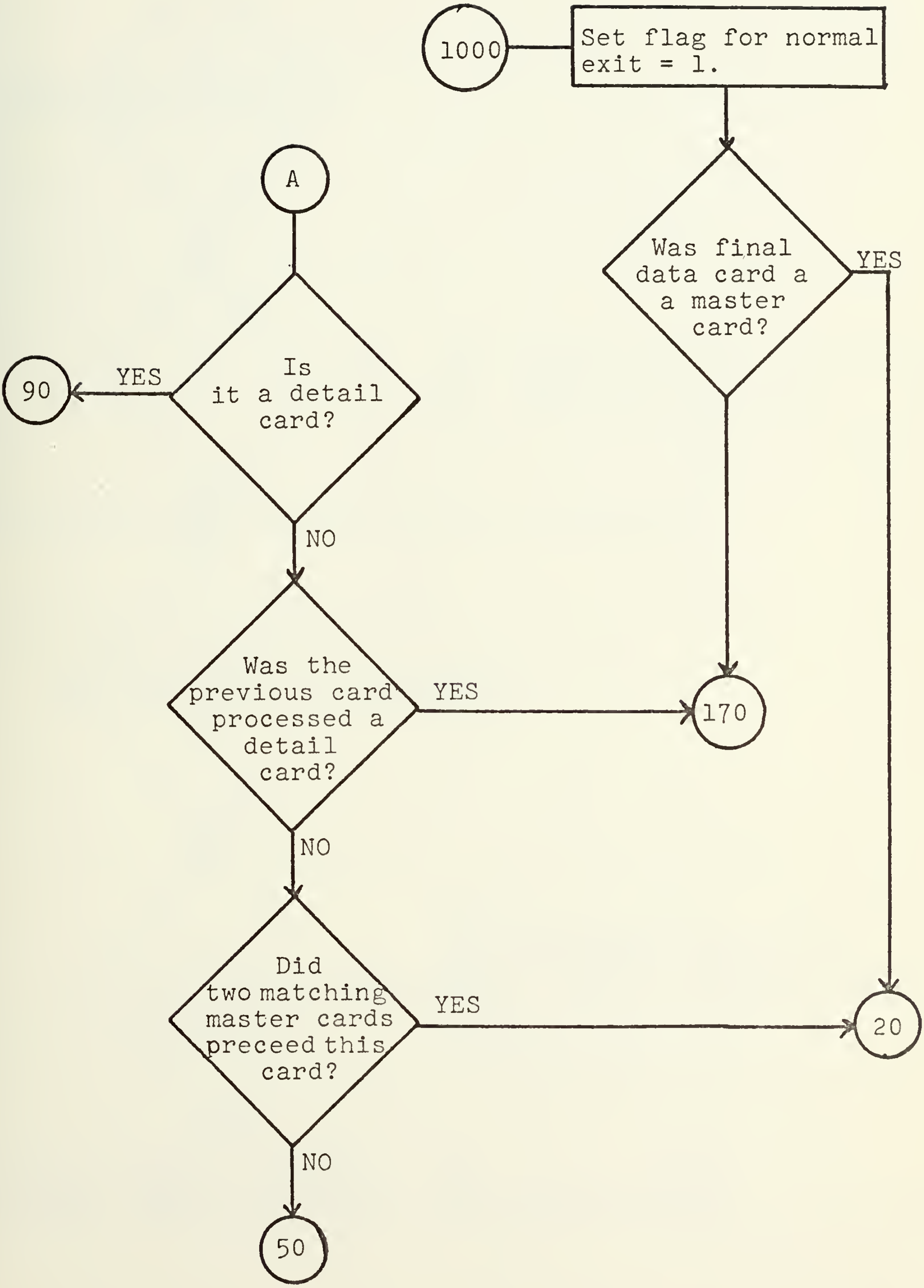
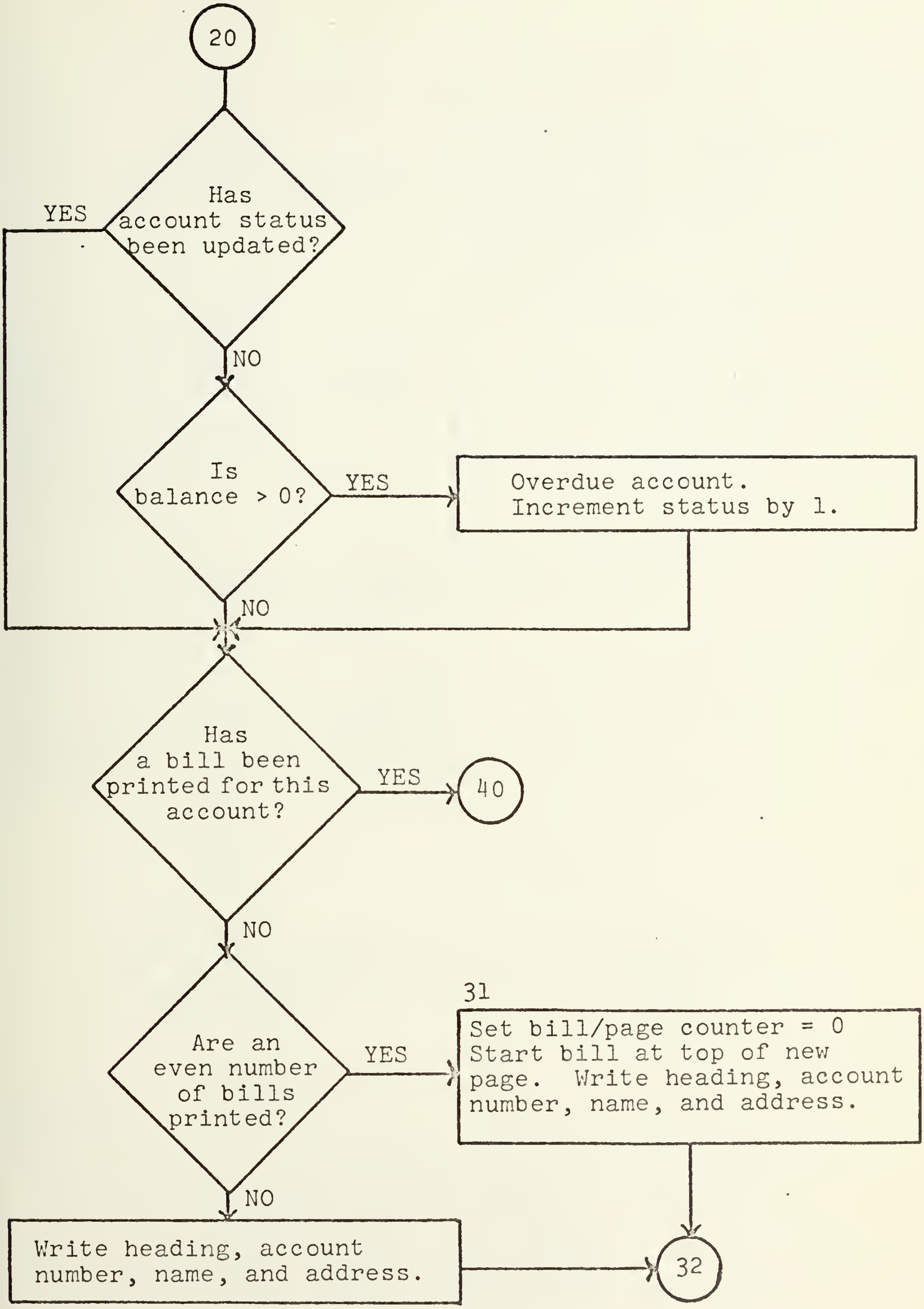

```
4050 FORMAT  (//,6X,'*************************************'
    1,'******************************',//,31X,'OVERDUE  AC'
    2,'COUNTS',//,6X,'SIGNAL',20X,'NAME',20X,'OVERDUE  ',
    3'CURRENT',/,6X,'NUMBER',44X,'BALANCE  BALANCE',//,6X,
    4'****************************************************'
    5,'***************')
4100 FORMAT(///,6X,'ONE MONTH OVERDUE-----',I4,' ACCOUNTS '
    1,'FOR',F8.2)
4150 FORMAT (//,6X,I4,A2,2X,10A4,F8.2,1X,F8.2)
4200 FORMAT(///,6X,'TWO MONTHS OVERDUE----',I4,' ACCOUNTS '
    1,'FOR',F8.2)
4300 FORMAT(///,6X,'THREE MONTHS OVERDUE--',I4,' ACCOUNTS '
    1,'FOR',F8.2)
4400 FORMAT(///,6X,'FOUR MONTHS OVERDUE---',I4,' ACCOUNTS '
    1,'FOR',F8.2)
4500 FORMAT(///,6X,'FIVE MONTHS OVERDUE---',I4,' ACCOUNTS '
    1,'FOR',F8.2)
4600 FORMAT(///,6X,'SIX MONTHS OVERDUE----',I4,' ACCOUNTS '
    1,'FOR',F8.2)
4700 FORMAT (////,6X,'TOTAL NUMBER OF OVERDUE ACCOUNTS =',
    1I4,//,6X,'TOTAL AMOUNT OVERDUE =  ',F8.2,//,6X,'TOTAL'
    2,' AMOUNT OF CURRENT BALANCES =  ',F8.2)
5000 FORMAT (28X,I2,6X,I1)
5020 FORMAT (28X,I2,6X,I1,3X,I1,2X,I2,2X,I2)
5040 FORMAT (//,6X,'************************************',//,
    16X,'CHARGING TRENDS OF CLUB MEMBERSHIP',//,6X,'*****',
    2'*****************************',//,6X,'NUMBER OF MEMB'
    3,'ERS',16X,'CHARGING BAR',4X,'CHARGING AID',//,6X,
    4'(JUNIORS EXCLUDED)',17X,'NO. AND %',7X,'NO. AND %')
5045 FORMAT (6X,'------------------',15X,'-------------',4X,
    1'-------------',//,6X,'ABSENT',7X,'=',I4,/,33X,'AM+HM '
    2,'=',I4,F7.1,5X,I4,F7.1,/,6X,'HONORARY     =',I4,//,
    36X,'LIFE',9X,'=',I4,//,6X,'REGULAR      =',I4,6X,
    4'LM+RM+RW =',I4,F7.1,5X,I4,F7.1,//,6X,'RESIDUAL     ='
    5,I4)
5050 FORMAT (//,6X,'MILITARY     =',I4,12X,'MM =',I4,F7.1,
    15X,I4,F7.1,//,6X,'INTERMEDIATE =',I4,12X,'IM =',I4,
    2F7.1,5X,I4,F7.1,//,13X,'TOTAL =',I4,9X,'TOTAL =',I4,
    3F7.1,5X,I4,F7.1,////,6X,'TOTAL NUMBER OF MEMBERS CHAR'
    4,'GING =',I4,2X,'WHICH IS  ',F4.1,' % OF TOTAL')
5055 FORMAT (//,6X,'MEMBERSHIP AND',F6.1,' % OF ACTIVE',
    1' (I.E., LM+RM+RW+MM+IM) MEMBERSHIP.',///,6X,'AVERAGE'
    2,' BAR CHARGE =',F8.2,2X,'WITH STANDARD DEVIATION =',
    3F8.2,//,6X,'AVERAGE AID CHARGE =',F8.2,2X,'WITH STAND'
    4,'ARD DEVIATION =',F8.2)
5060 FORMAT (//,6X,'*************************',//,6X,'VOLU'
    1,'ME OF CHARGES BY DATE',//,6X,'*********************'
    2,'****',//,6X,'BAR INCOME',15X,'AID INCOME',18X,
    3'TOTAL INCOME',//,6X,'DATE')
5065 FORMAT  (/,7X,I2,1X,F8.2,17X,F8.2,17X,F8.2)
5070 FORMAT (10X,'--------',17X,'--------',17X,'--------',
    1//,10X,F8.2,17X,F8.2,17X,F8.2)
5075 FORMAT (//,6X,'**************************************',
    1'**************',//,6X,'VOLUME OF CHARGES BY DAYS OF ',
    2'THE WEEK (MONDAY = 1)',//,6X,'**********************',
    3'*******************************',//,8X,'DAY',6X,'BAR',
    422X,'AID',19X,'COMBINED')
5080 FORMAT (//,9X,I1,3X,F8.2,17X,F8.2,17X,F8.2)
5085 FORMAT (13X,'--------',17X,'--------',17X,'--------',
    1//,13X,F8.2,17X,F8.2,17X,F8.2)
5100 FORMAT (//,6X,'**************************************',
    1'*******',//,6X,'NUMBER OF PERSONS AND AMOUNTS FOR AI'
    2,'D EVENTS',//,6X,'**********************************',
    3'***********',//,6X,'DATE LUNCH',6X,'AMOUNT | DINNER',
    45X,'AMOUNT | OTHER',6X,'AMOUNT',/,11X,'NMFA',14X,
    5'| NMFA',14X,'| NMFA')
5105 FORMAT (15X,'NG',12X,'|     NG',12X,'|     NG',/,18X,
    1'TOT',8X,'|',8X,'TOT',8X,'|',8X,'TOT')
5110 FORMAT (/,6X,I2,4X,I2,1X,I2,1X,I2,F8.2,4X,I2,1X,I2,1X,
    1I2,F8.2,4X,I2,1X,I2,1X,I2,F8.2)
```

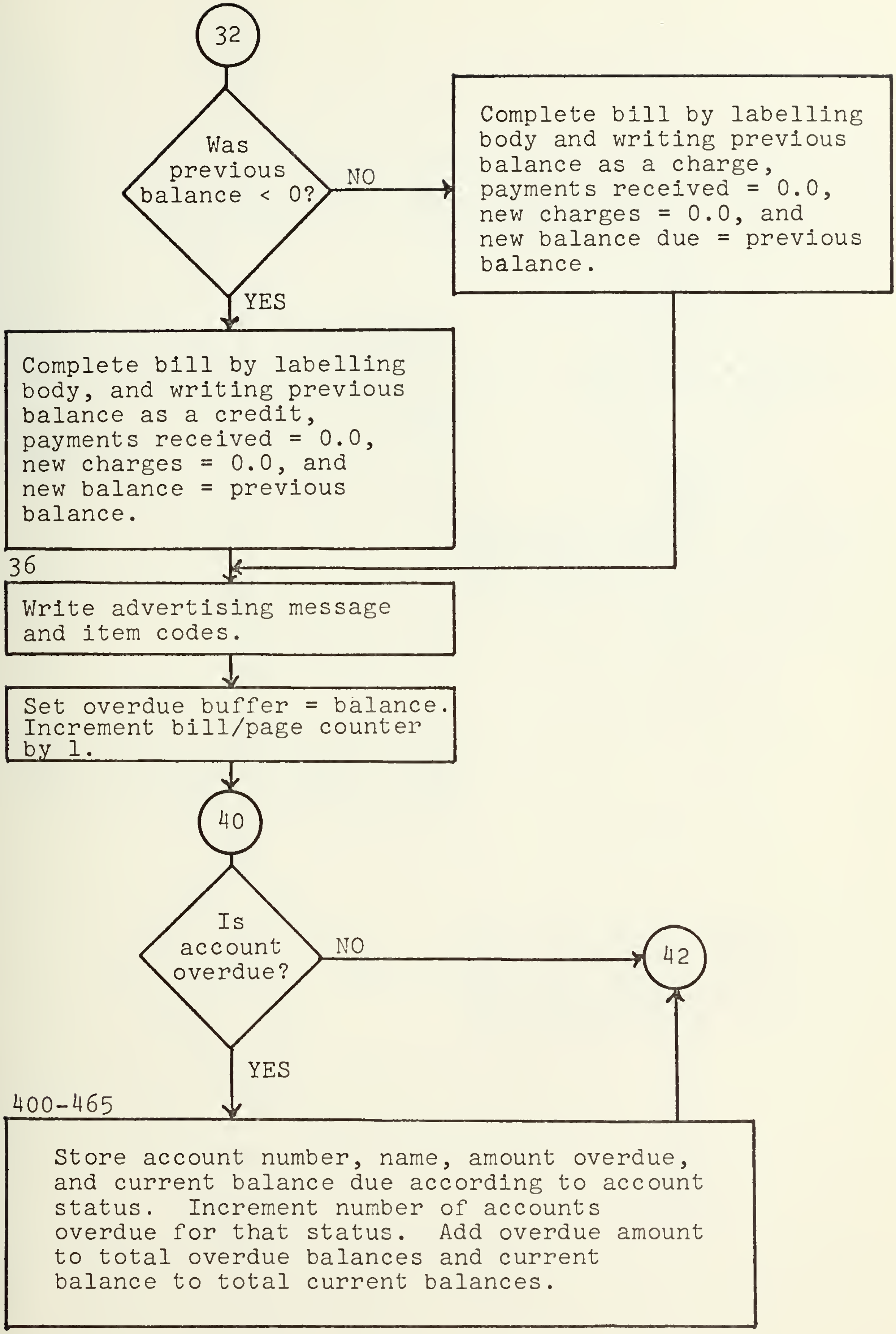
```
5115 FORMAT (12X,'-- -- -- -------    -- -- -- -------    '
    1,'-- -- -- -------',//,11X,I3,I3,I3,F8.2,3X,I3,
    2I3,I3,F8.2,3X,I3,I3,I3,F8.2)
     END
```

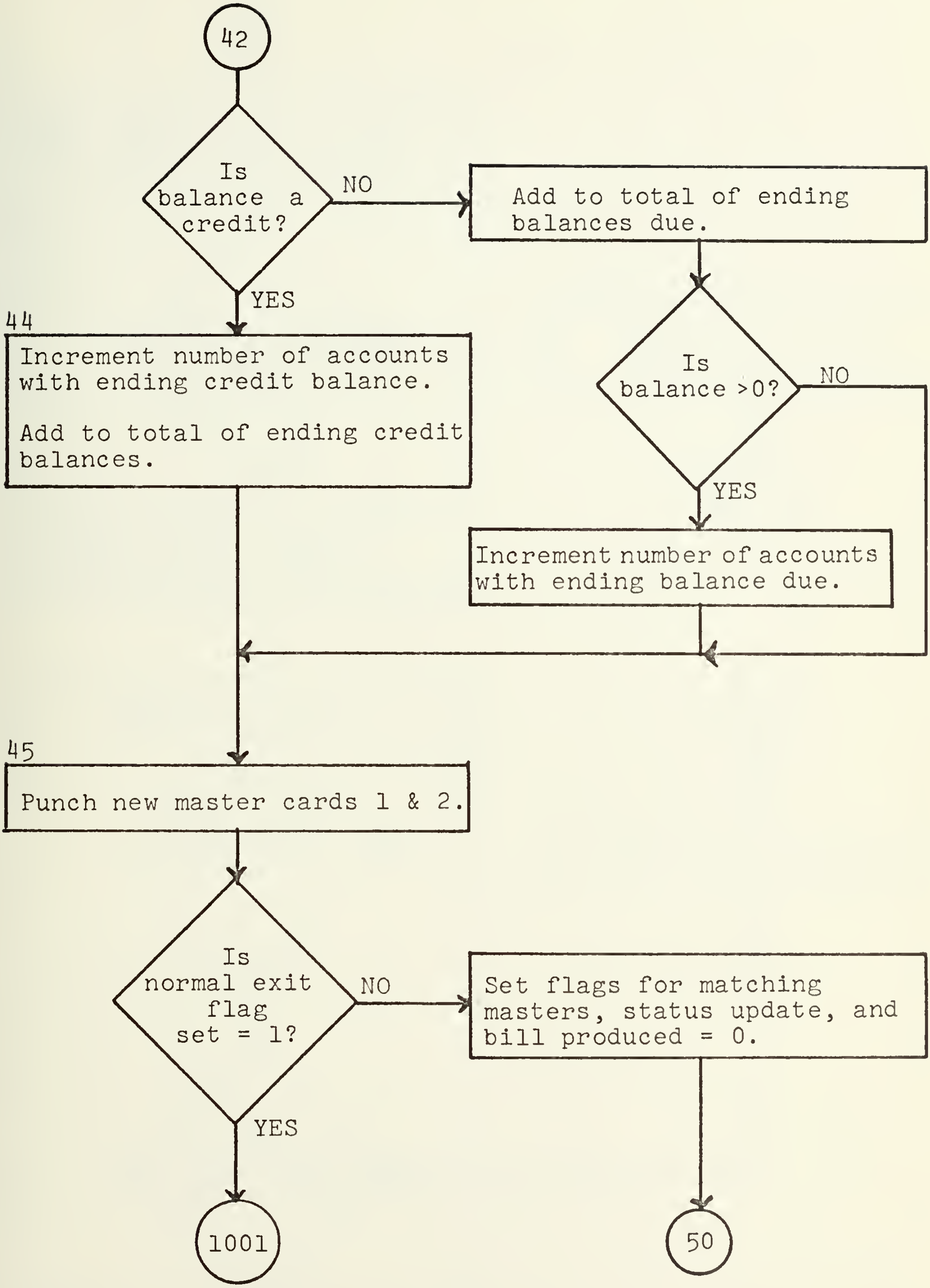
LOGIC FLOW CHART

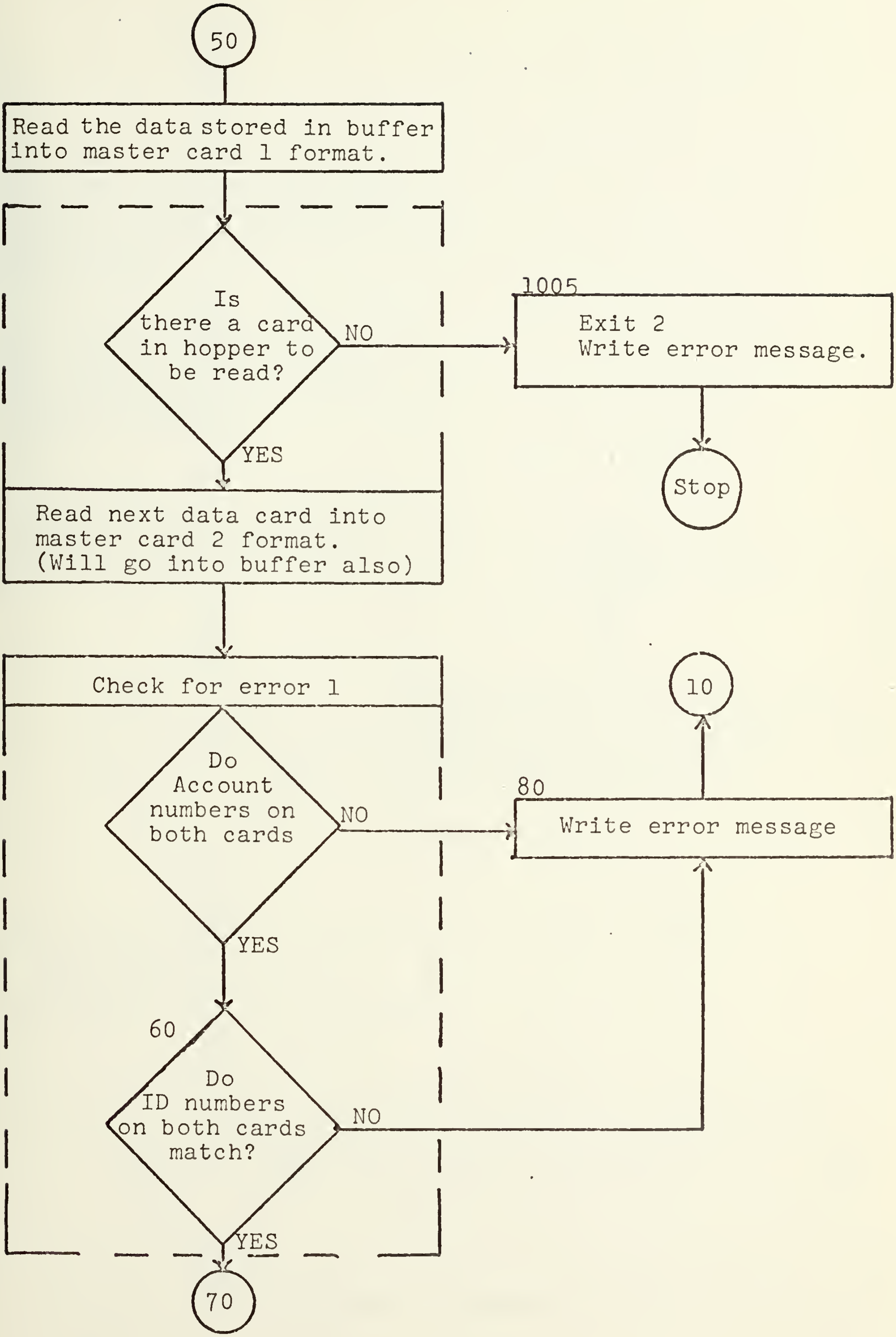

Dimension and initialize all vectors and matrices. Initialize all necessary identifier names.
Call subroutine REREAD
10
Cards in hopper to be read?
NO
1000
YES
Read a card into buffer.
A

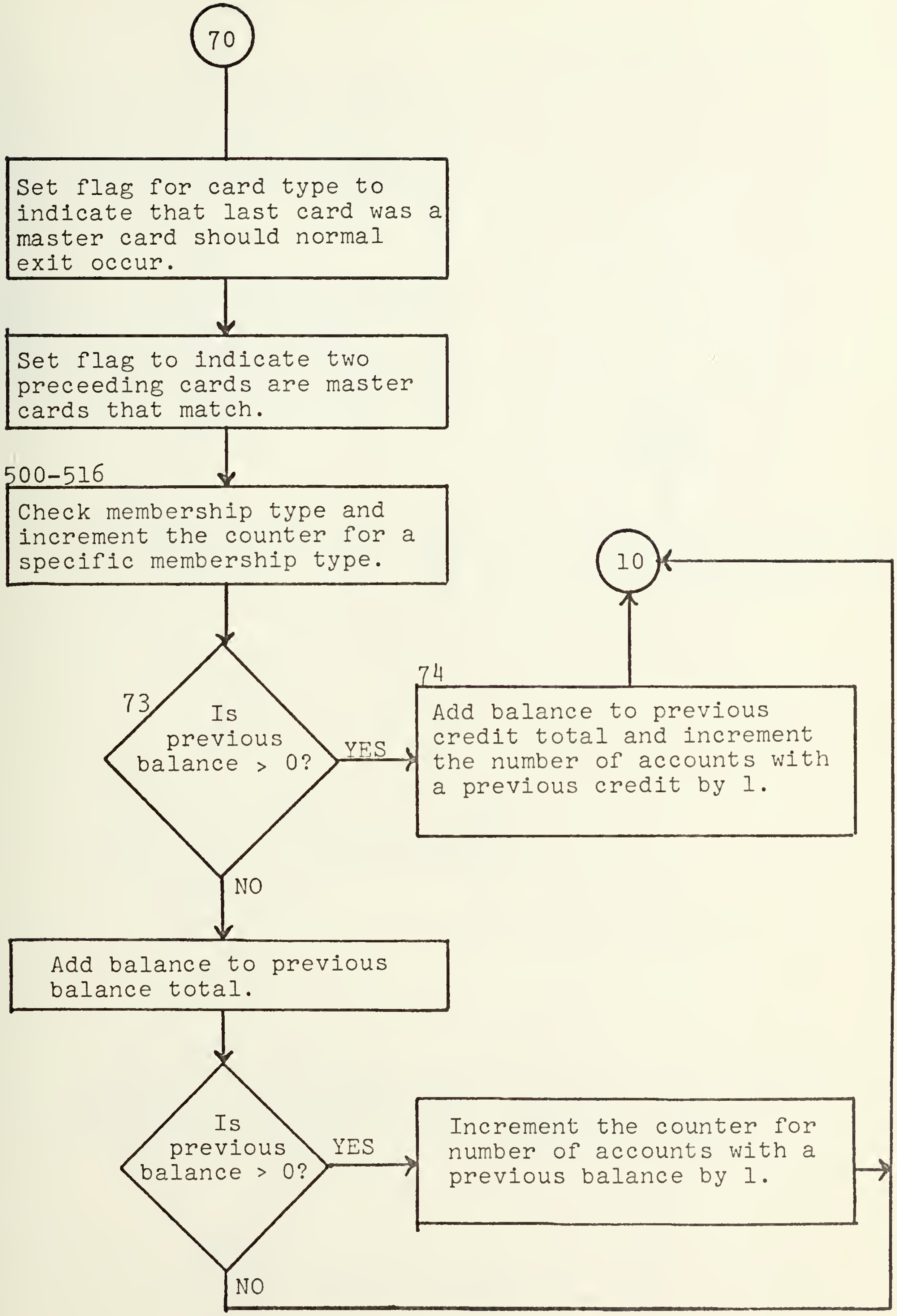

1000
Set flag for normal exit = 1.
A
Was final data card a a master card?
YES
Is it a detail card?
YES
90
NO
Was the previous card processed a detail card?
YES
170
NO
Did two matching master cards preceed this card?
YES
20
NO
50

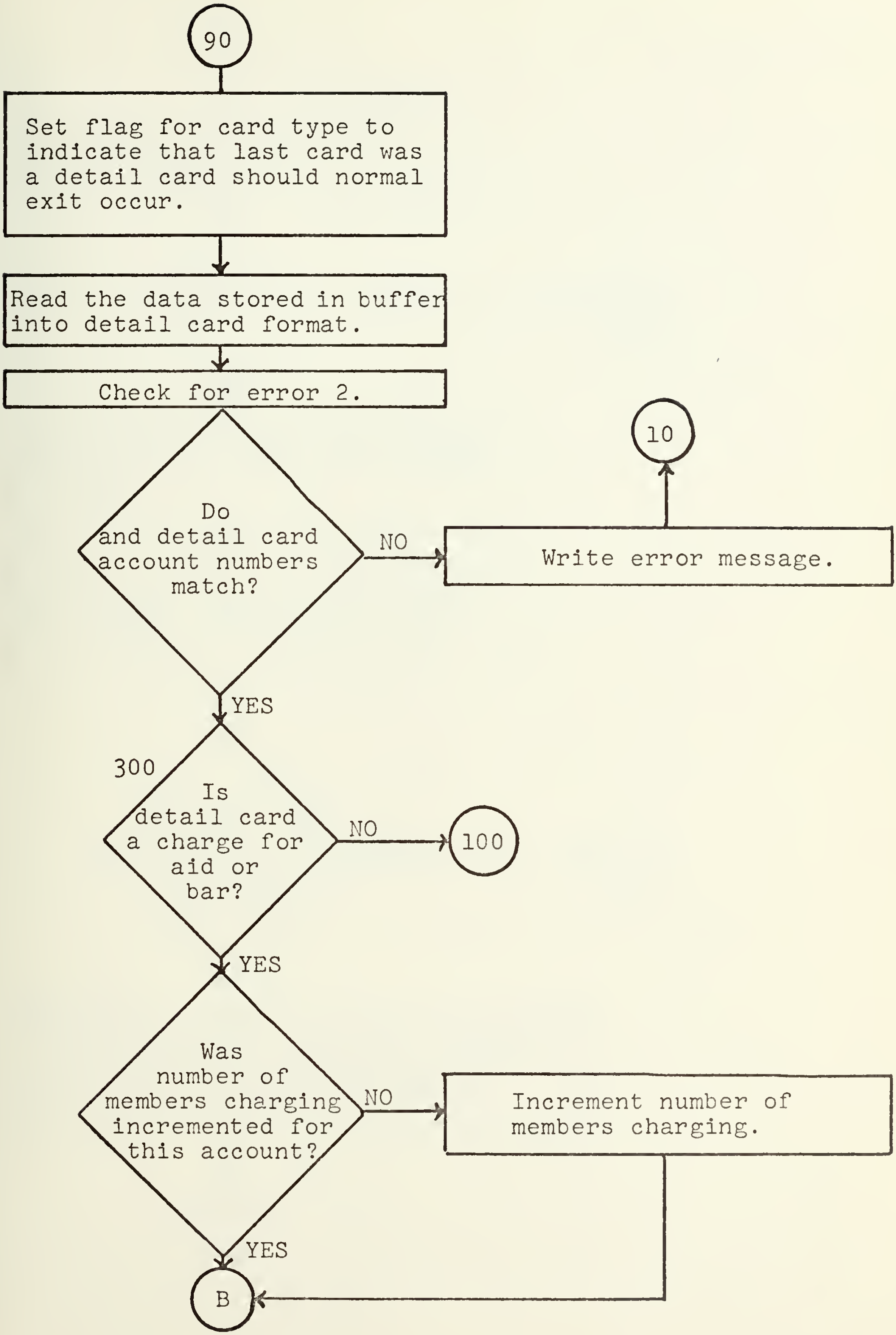

20
Has account status been updated?
YES
NO
Is balance > 0?
YES
Overdue account. Increment status by 1.
NO
Has a bill been printed for this account?
YES
40
NO
31
Are an even number of bills printed?
YES
Set bill/page counter = 0
Start bill at top of new page. Write heading, account number, name, and address.
NO
Write heading, account number, name, and address.
32

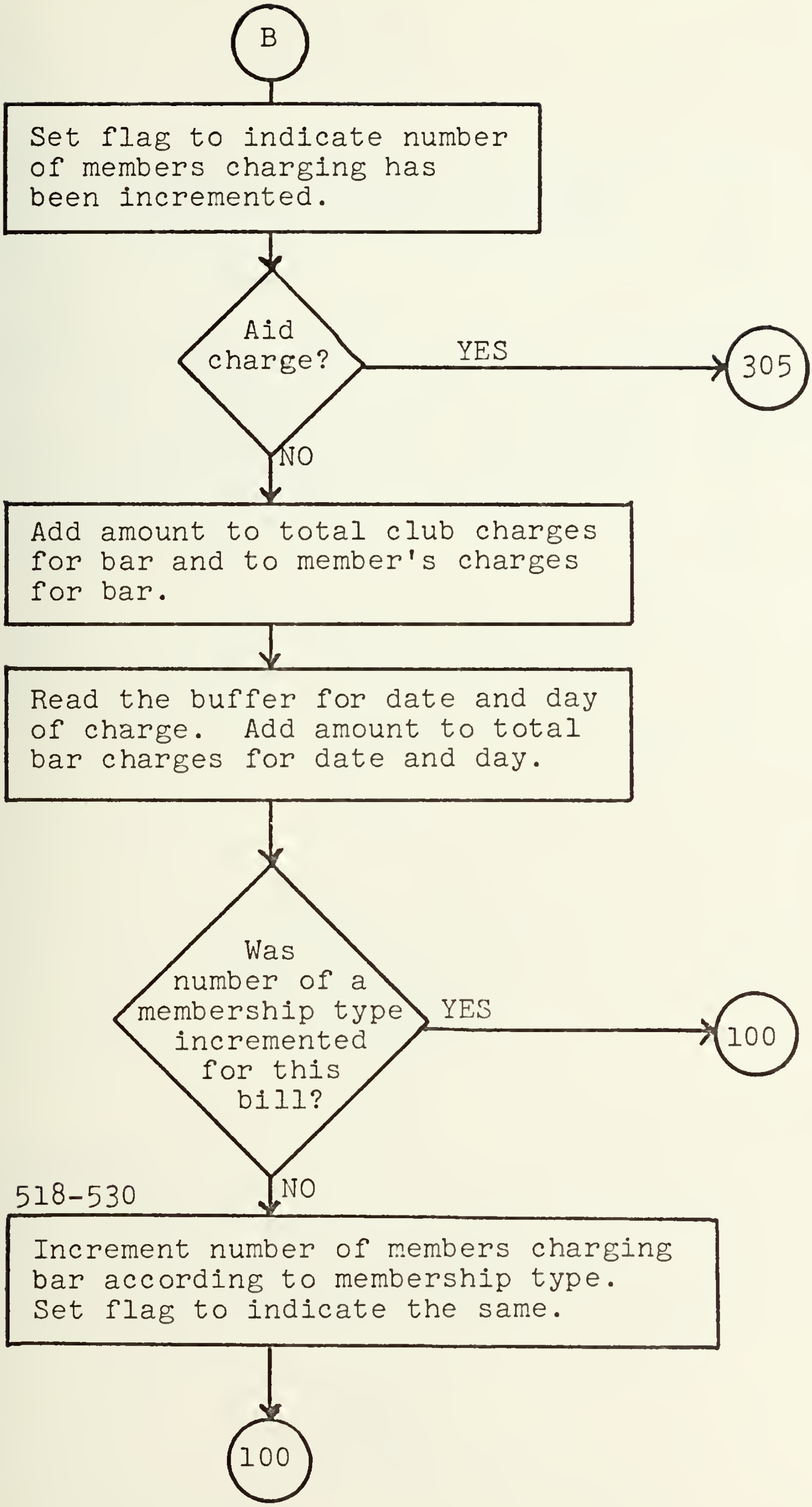

32
Was previous balance < 0?
NO
Complete bill by labelling body and writing previous balance as a charge, payments received = 0.0, new charges = 0.0, and new balance due = previous balance.
YES
Complete bill by labelling body, and writing previous balance as a credit, payments received = 0.0, new charges = 0.0, and new balance = previous balance.
36
Write advertising message and item codes.
Set overdue buffer = balance. Increment bill/page counter by 1.
40
Is account overdue?
NO
42
YES
400-465
Store account number, name, amount overdue, and current balance due according to account status. Increment number of accounts overdue for that status. Add overdue amount to total overdue balances and current balance to total current balances.

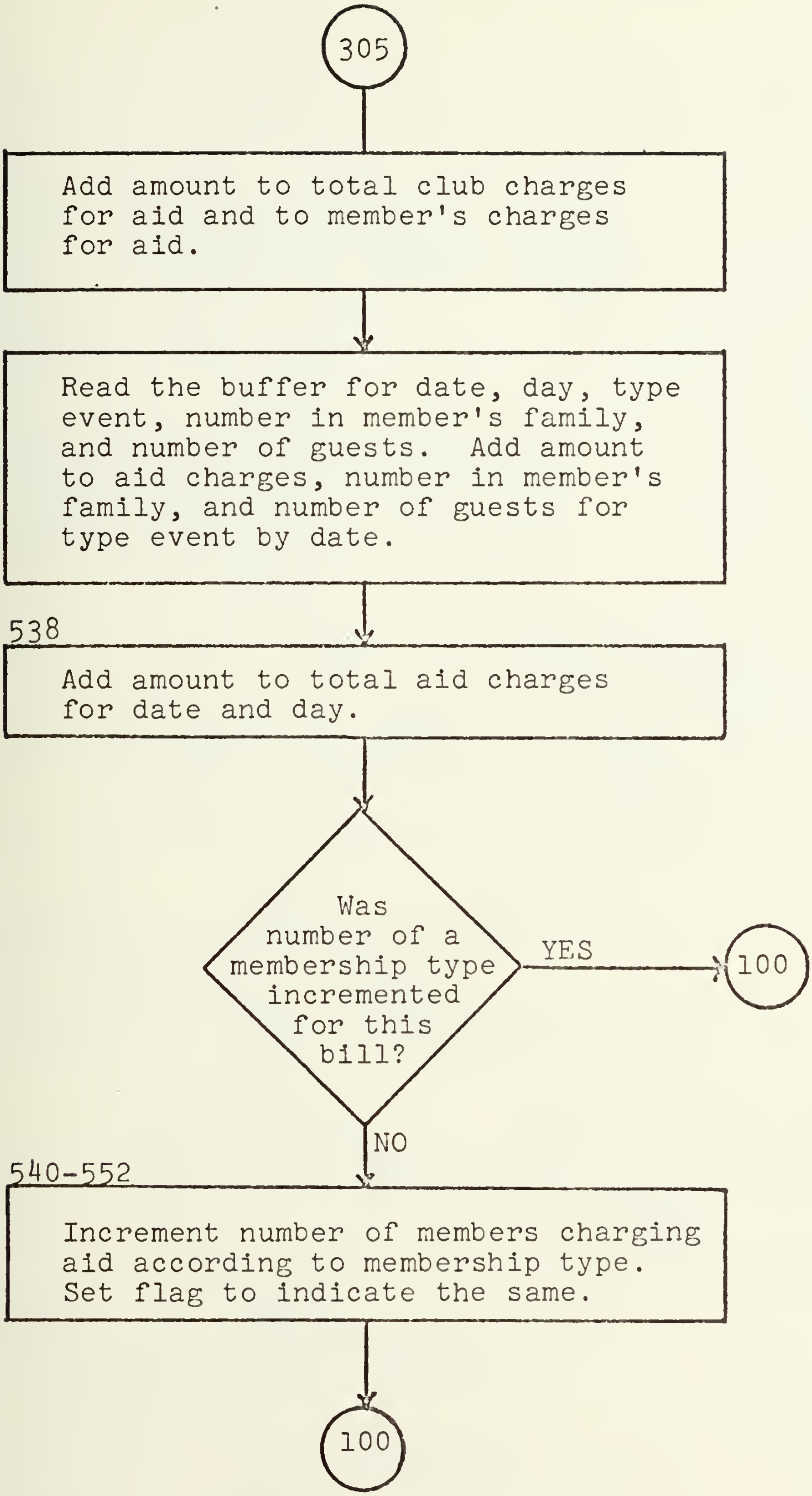

42
Is balance a credit?
NO
Add to total of ending balances due.
YES
44
Increment number of accounts with ending credit balance.
Add to total of ending credit balances.
Is balance >0?
NO
YES
Increment number of accounts with ending balance due.
45
Punch new master cards 1 & 2.
Is normal exit flag set = 1?
NO
Set flags for matching masters, status update, and bill produced = 0.
YES
1001
50

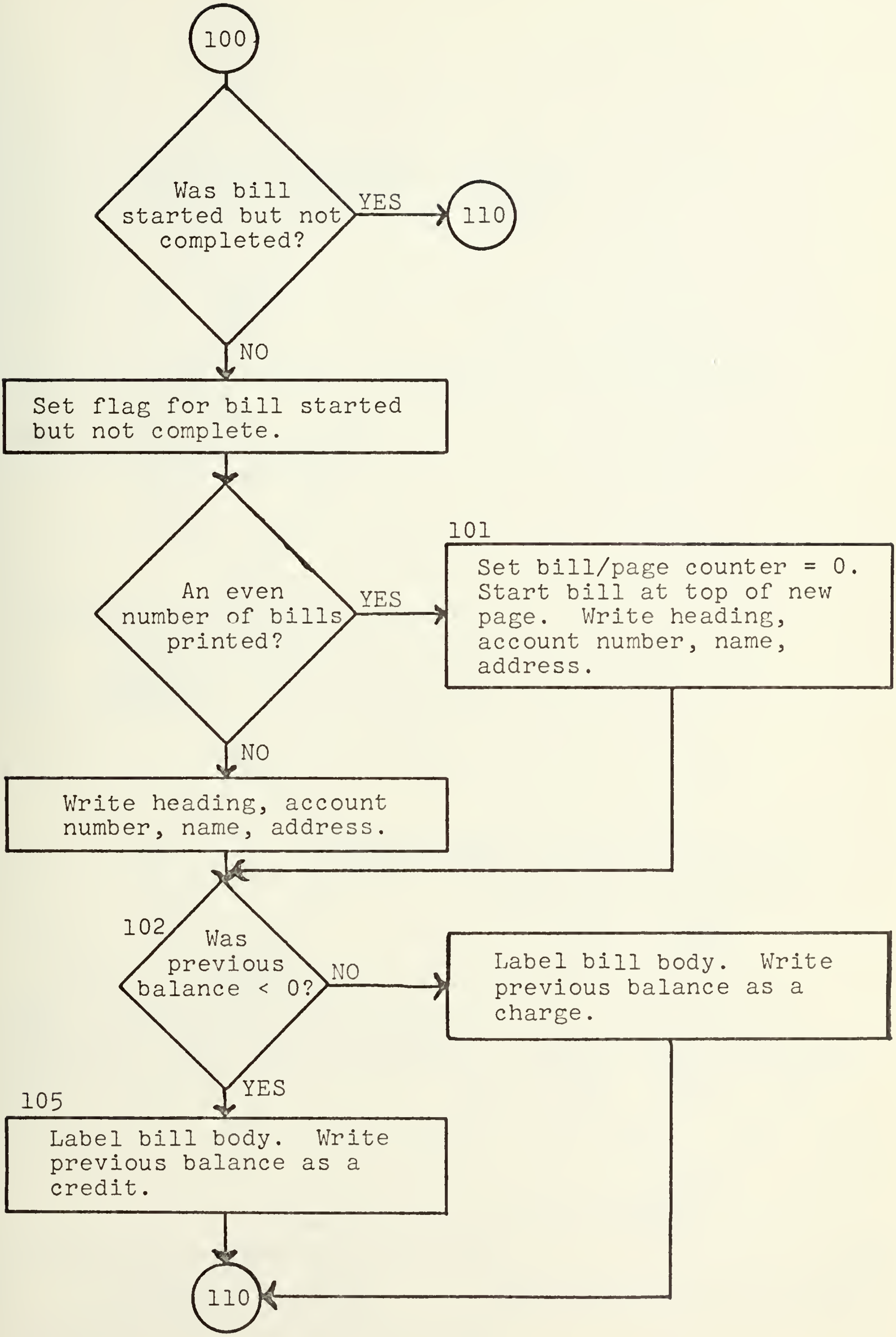

50
Read the data stored in buffer into master card 1 format.
Is there a card in hopper to be read?
NO
YES
1005
Exit 2
Write error message.
Stop
Read next data card into master card 2 format. (Will go into buffer also)
Check for error 1
10
80
Do Account numbers on both cards
NO
YES
Write error message
60
Do ID numbers on both cards match?
NO
YES
70

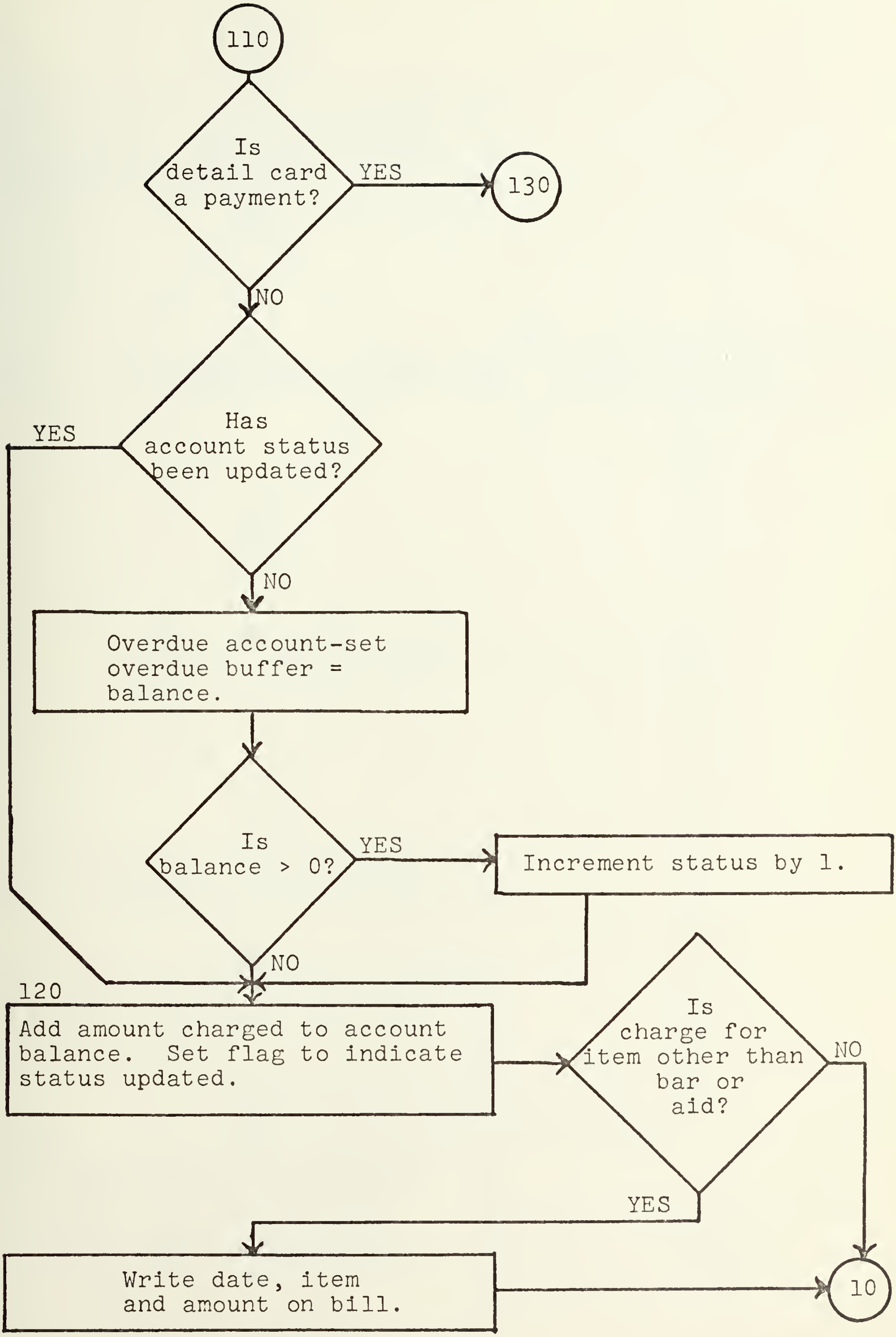

70
Set flag for card type to indicate that last card was a master card should normal exit occur.
Set flag to indicate two preceeding cards are master cards that match.
500-516
Check membership type and increment the counter for a specific membership type.
10
73
Is previous balance > 0?
YES
74
Add balance to previous credit total and increment the number of accounts with a previous credit by 1.
NO
Add balance to previous balance total.
Is previous balance > 0?
YES
Increment the counter for number of accounts with a previous balance by 1.
NO

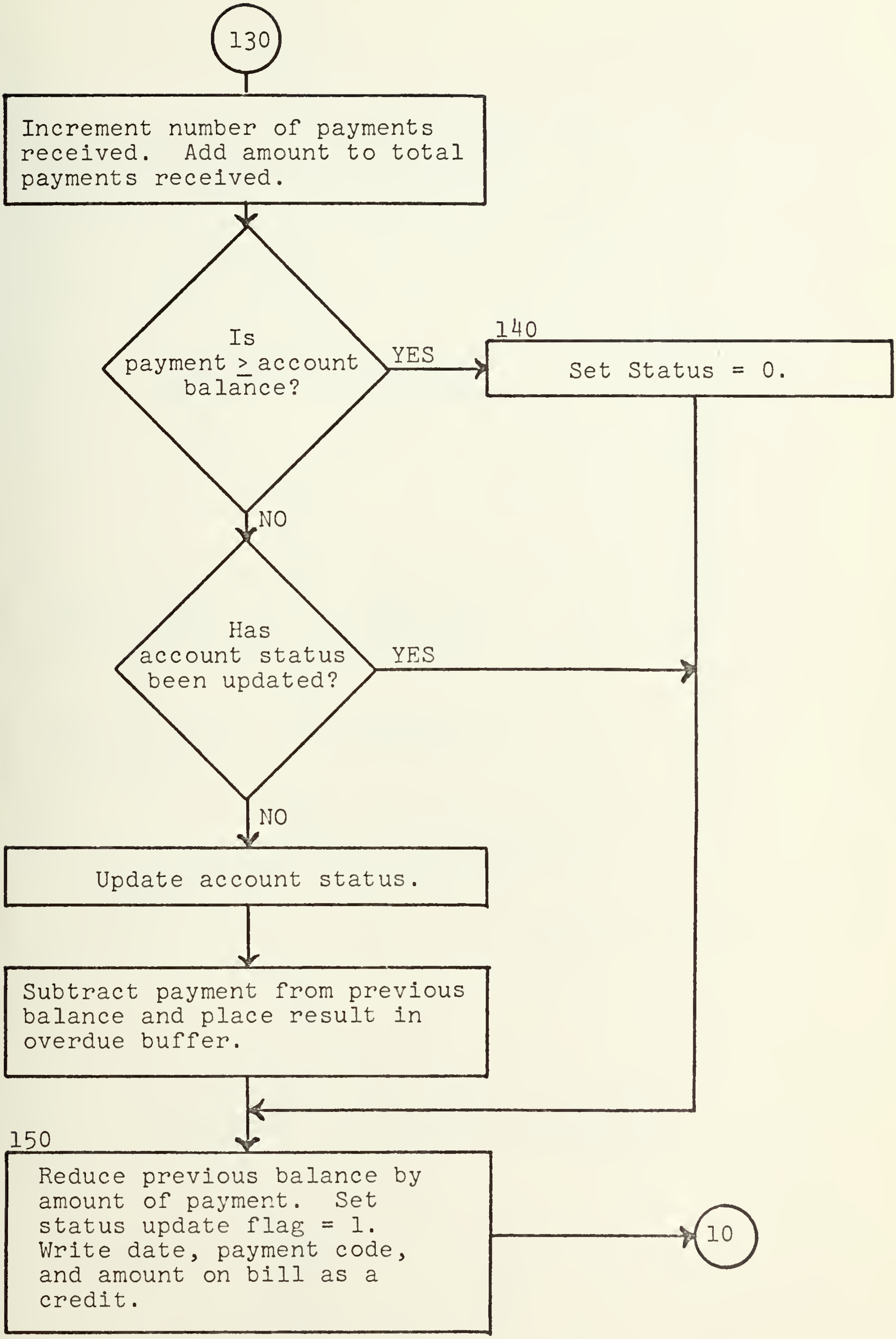

90
Set flag for card type to indicate that last card was a detail card should normal exit occur.
Read the data stored in buffer into detail card format.
Check for error 2.
Do and detail card account numbers match?
NO
Write error message.
10
YES
300
Is detail card a charge for aid or bar?
NO
100
YES
Was number of members charging incremented for this account?
NO
Increment number of members charging.
YES
B

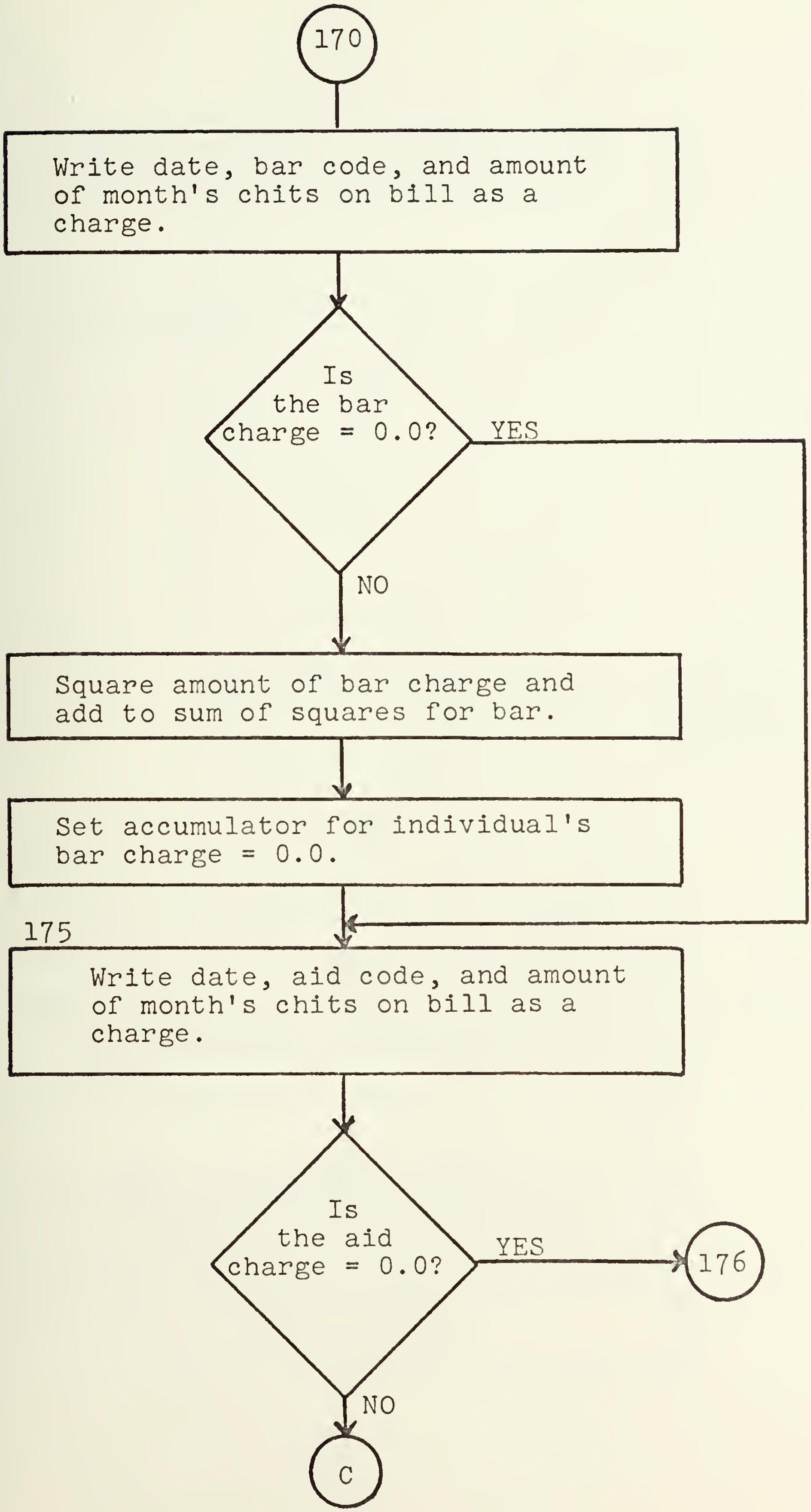

B
Set flag to indicate number of members charging has been incremented.
Aid charge?
YES
305
NO
Add amount to total club charges for bar and to member's charges for bar.
Read the buffer for date and day of charge. Add amount to total bar charges for date and day.
Was number of a membership type incremented for this bill?
YES
100
NO
518-530
Increment number of members charging bar according to membership type. Set flag to indicate the same.
100

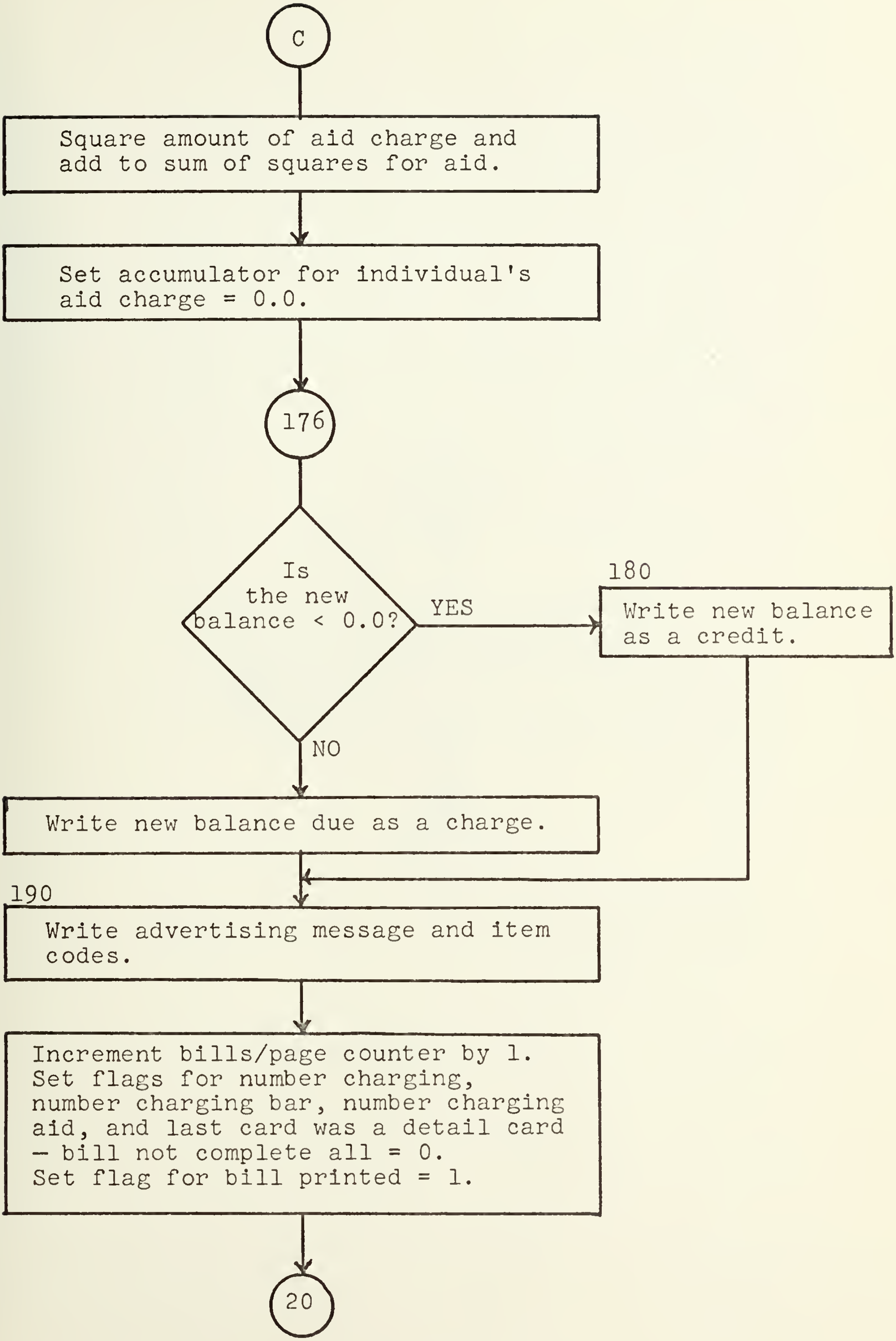

305
Add amount to total club charges for aid and to member's charges for aid.
Read the buffer for date, day, type event, number in member's family, and number of guests. Add amount to aid charges, number in member's family, and number of guests for type event by date.
538
Add amount to total aid charges for date and day.
Was number of a membership type incremented for this bill?
YES
100
NO
540-552
Increment number of members charging aid according to membership type. Set flag to indicate the same.
100

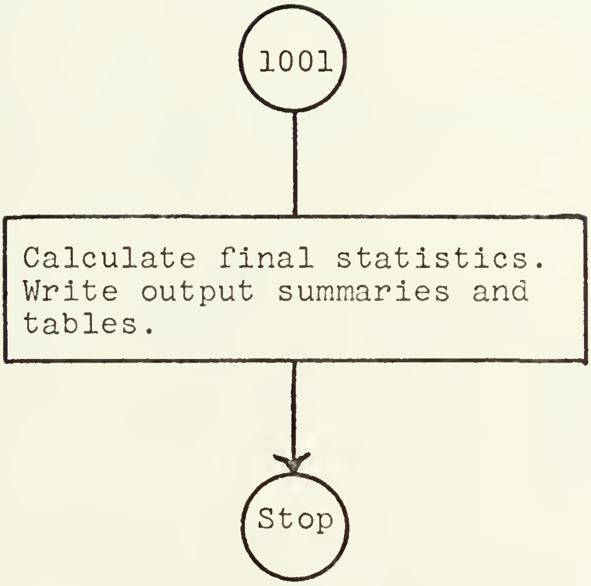

100
Was bill started but not completed?
YES
110
NO
Set flag for bill started but not complete.
An even number of bills printed?
YES
101
Set bill/page counter = 0. Start bill at top of new page. Write heading, account number, name, address.
NO
Write heading, account number, name, address.
102
Was previous balance < 0?
NO
Label bill body. Write previous balance as a charge.
YES
105
Label bill body. Write previous balance as a credit.
110


110
Is detail card a payment?
YES
130
NO
Has account status been updated?
YES
NO
Overdue account-set overdue buffer = balance.
Is balance > 0?
YES
Increment status by 1.
NO
120
Add amount charged to account balance. Set flag to indicate status updated.
Is charge for item other than bar or aid?
NO
YES
Write date, item and amount on bill.
10


130
Increment number of payments received. Add amount to total payments received.
Is payment ≥ account balance?
YES
140
Set Status = 0.
NO
Has account status been updated?
YES
NO
Update account status.
Subtract payment from previous balance and place result in overdue buffer.
150
Reduce previous balance by amount of payment. Set status update flag = 1. Write date, payment code, and amount on bill as a credit.
10


170
Write date, bar code, and amount of month's chits on bill as a charge.
Is the bar charge = 0.0?
YES
NO
Square amount of bar charge and add to sum of squares for bar.
Set accumulator for individual's bar charge = 0.0.
175
Write date, aid code, and amount of month's chits on bill as a charge.
Is the aid charge = 0.0?
YES
176
NO
C


C
Square amount of aid charge and add to sum of squares for aid.
Set accumulator for individual's aid charge = 0.0.
176
Is the new balance < 0.0?
YES
180
Write new balance as a credit.
NO
Write new balance due as a charge.
190
Write advertising message and item codes.
Increment bills/page counter by 1.
Set flags for number charging, number charging bar, number charging aid, and last card was a detail card – bill not complete all = 0.
Set flag for bill printed = 1.
20


1001
Calculate final statistics. Write output summaries and tables.
Stop

RELATION OF PROGRAM ENTITIES TO REAL ENTITIES

ISIG	Member's signal number
BUFFER ( )	Location used to store information contained in columns five through 79 of each card read
ID	An identifier number to distinguish master cards (zero) from detail cards (one)
KTEST	Flag to test if previous card processed was a detail card
ITEST	Flag to test if two matching master cards preceded the card just read
LTEST	Flag to check update of account status
BAL	Account balance read from master card two
ISTAT	Overdue status of an account
MTEST	Flag to test whether a bill was printed for an account
IPAGE	Counts the number of bills printed per page
DATEH ( )	Date of bill
DATEC ( )	Date of charge
ISIGM	Member's signal number on master card one
ASIGM	Membership type on master card one
ANAME ( )	Name of member
STREET ( )	Street address
CITY	City
STATE	State and zip code
ODBAL	Overdue balance
L	Counter for number of accounts one month overdue
LL	" " " " " two months overdue
LLL	" " " " " three months overdue
LLLL	" " " " " four months overdue
LLLLL	" " " " " five months overdue
LLLLLL	" " " " " six months or more overdue
IODUE1 ( )	Stores account numbers-one month overdue
IODUE2 ( )	" " " -two months overdue
IODUE3 ( )	" " " -three months overdue
IODUE4 ( )	" " " -four months overdue
IODUE5 ( )	" " " -five months overdue
IODUE6 ( )	" " " -six months or more overdue
AODUE1 ( )	Storage locations for membership type according to number of months overdue
⋮	
AODUE6 ( )	
ODNA1 ( )	Storage locations for names of members according to number of months overdue
⋮	
ODNA6 ( )	

ODBA1 ( )	Storage locations for overdue balances according to number of months overdue
⋮	
ODBA6 ( )	
CUBA1 ( )	Storage locations for current balances of overdue accounts according to number of months overdue
⋮	
CUBA6 ( )	
TODUE1 ( )	Total amount of overdue accounts according to number of months overdue
⋮	
TODUE6 ( )	
TCUBAL	Total amount of current balances for overdue accounts
EBALDU	Ending balance due
NWEBAL	" number of accounts with a balance due
EBALCR	" balance credit
NWECR	" number of accounts with a credit balance
IDM1	ID number on master card one
ICHECK	Member's signal number on master card two
ACHECK	Membership type on master card two
ICLASS	A number code for membership type on master card two
ISS	Code for sailing school members
IDM2	ID number on master card two
IEND	Flag for normal program exit
IDEXIT	Flag for last card type read should a normal exit occur
NAMTOT	Total number of absent members
NHMTOT	" " " honorary "
NLMTOT	" " " life "
NRMTOT	" " " regular "
NRWTOT	" " " residual "
NMMTOT	" " " military "
NIMTOT	" " " intermediate members
PRBADU	Total amount of previous balances due
PRBACR	" " " " credit
NWPBAL	Number of accounts with a previous balance due
NWPCR	" " " " " " credit
ISIGD	Member's signal number on detail card
ASIGD	Membership type on detail card
ITRAND	Transaction code on detail card
ITYPED	Type of transaction on detail card
AMTD	Amount of transaction on detail card
ADTD	Date of transaction on detail card
IFLAG	Flag for incrementing the number of members charging
NCTOT	Total number of members charging

BARSUM	Total of bar charges
AIDSUM	" " aid "
SUBBAR	Total of bar charges for an account
SUBAID	" " aid " " " "
IDATE	Calendar day of month for charge
IDAY	Day of the week (Monday = 1) for charge
IBFLAG	Flag for incrementing number of members charging bar
IAFLAG	Flag for incrementing number of members charging aid
IMEAL	Type of aid event - lunch, dinner, other
NMFA	Number in member's family present
NGUEST	" of guests
NAHCB	" " members charging bar - AM, HM
NAHCA	" " " " aid - " "
NLRRCB	" " " " bar - LM, RM, RW
NLRRCA	" " " " aid - " " "
NMCB	" " " " bar - MM
NMCA	" " " " aid - "
NICB	" " " " bar - IM
NICA	" " " " aid - "
NCBTOT	Total number charging bar
NCATOT	" " " aid
NCTOT	" " of members charging
MEMTOT	" " " "
AMEM	" " " active members
PAHCB	Percentage charging bar - AM, HM
PAHCA	" " aid - " "
PLRRCB	" " bar - LM, RM, RW
PLRRCA	" " aid - " " "
PMCB	" " bar - MM
PMCA	" " aid - "
PICB	" " bar - IM
PICA	" " aid - "
PTOTMC	Percentage of total membership charging
PAMC	" " active " "
BCHDT ( )	Bar charges for date
BCHDA ( )	" " " day
ACHDT ( )	Aid " " date
ACHDA ( )	" " " day
BACHDT ( )	Total bar and aid charges for date
BACHDA ( )	" " " " " " day
TBCHDT	" of bar charges by date
TACHDT	" " aid " " "
TBCHDA	" " bar " " day
TACHDA	" " aid " " "
TBACDT	" " bar and aid charges by date
TBACDA	" " " " " " " day
NMFAL ( )	Number in members' families for lunch and date
NMFAD ( )	" " " " " dinner " "
NMFAO ( )	" " " " " other " "
NGL ( )	" of guests for lunch and date
NGD ( )	" " " " dinner " "
NGO ( )	" " " " other " "

NMFALT	Total of number in members' families for lunch
NMFADT	" " " " " " " dinner
NMFAOT	" " " " " " " other
NGLT	Total number of guests for lunch
NGDT	" " " " " dinner
NGOT	" " " " " other
ACLDT ( )	Aid charges for lunch and date
ACDDT ( )	" " " dinner " "
ACODT ( )	" " " other " "
TACL	Total aid charges for lunch
TACD	" " " " dinner
TACO	" " " " other
PCB	Percentage of total membership charging bar
PCA	" " " " " aid
NTOTL ( )	Total number for lunch and date
NTOTD ( )	" " " dinner " "
NTOTO ( )	" " " other " "
NTOTLM	Total number of persons for lunch
NTOTDM	" " " " " dinner
NTOTOM	" " " " " other
PARBAL	Previous accounts receivable balance
EARBAL	Ending " " "
PAYREC	Total amount of payments received
NPAYRC	" number " " "
BSQ	Square of individual member's total bar charge
ASQ	" " " " " aid "
SUMBSQ	Sum of squares for bar charges
SUMASQ	" " " " aid "
NODTOT	Total number of overdue accounts
TODSUM	Sum of all overdue accounts
FAH	Total number of members - AM, HM
FLRR	" " " " - LM, RM, RW
BSUMSQ	Square of total bar charges
ASUMSQ	" " " aid "
BAVG	Average bar charge
AAVG	" aid "
BVAR	Variance of bar charges
AVAR	" " aid "
BSTDEV	Standard deviation of bar charges
ASTDEV	" " " aid "

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ABSTRACT

This thesis describes the application of modern managerial concepts and analytical techniques - represented by Planning, Programming, and Budgeting - to a small semi-public, participative, non-governmental organization. After describing and analyzing the organization's operations, activities and alternative futures, the author describes his grouping of its activities into objective-oriented programs with expenses, income, effectiveness measures and "out-puts" related to each program. The design, development, and inauguration of a computer based system for data collection and billing is explained as well as a proposed management prediction model. It concludes with an appraisal of their relevance and usefulness to the organization's Board of Directors as aids in the making of rational and wise decisions regarding anticipated choices in the near and further future.

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